PARTS OF THE ORIGINAL DOCUMENT
ARE OF POOR REPRODUCTIVE QUALITY

CERTAINES PARTIES DU DOCUMENT ORIGINAL
SONT DE PIÈTRE QUALITÉ DE REPRODUCTION

Government of Canada
Regional Industrial Expansion

Government of New Brunswick

This publication is jointly funded under the Canada/
New Brunswick Economic and Regional Development Agreement.

Funding assistance was also provided by the
Small Craft Harbours Branch, Department of Fisheries and Oceans.

DEVELOPMENT STRATEGY FOR
RECREATIONAL BOATING
IN NEW BRUNSWICK

FGA FLANDER - GOOD
ASSOCIATES LTD.

Suite 200, 335 Queen Street, P.O. Box 207, Fredericton, New Brunswick E3B 1B1 (506) 458-8455

FGA FIANDER - GOOD
ASSOCIATES LTD.

June 23, 1986 85-522-01/1.1

Mr. Ed Pelger
Research Planning Officer
Department of Tourism,
Recreation and Heritage
P.O. Box 12345
Fredericton, NB
E3B 5C3

Mr. Don Cafferty
Department of Regional
Industrial Expansion
590 Brunswick Street
Fredericton, NB
E3B 1H5

RE: Development Strategy For Recreational Boating in New Brunswick

Please find enclosed herewith the final report on the above project.

Thank you for the opportunity to assist you and your joint Steering Committee with this interesting project. I trust this document and the associated background research provides the basis for formulating an appropriate role for the recreational boating component of your overall tourism development strategy.

Allan Fiander, P. Eng.
President

ADF/rc

Enclosure

Registered Professional Engineer
Province of New Brunswick
#1588
A. D. Fiander
SIGNATURE
86-06-23
DATE
Province du Nouveau-Brunswick
Ingénieur Enregistré

TABLE OF CONTENTS

Chapter Number	Title	Page Number
1.0	INTRODUCTION	1.1
	1.1 Study Area	1.1
	1.2 Management Structure	1.1
	1.3 Study Team	1.1
	1.4 Study Scope and Objectives	1.1
2.0	SUMMARY	2.1
	Fleet Characteristics	2.1
	Facility and Service Characteristics	2.1
	Economic Impacts	2.2
	Development Potential	2.3
	Development Philosophy	2.4
	Development Strategy	2.4
	Strategic Boating Facilities	2.5
	Product Development Programs	2.5
	Marketing Strategy	2.7
	Cost of Boating Strategy	2.7
	Economic and Financial Aspects	2.7
3.0	PROPOSED PROVINCIAL RECREATIONAL BOATING DEVELOPMENT STRATEGY	3.1
	3.1 Introduction	3.1
	3.2 Basis for Development of a Boating Strategy	3.1
	3.2.1 Definition of Recreational Boating Market	3.2
	3.2.2 Economic Justification for a Recreational Boating Strategy	3.11
	3.2.3 Objectives of a Provincial Recreational Boating Strategy	3.12
	3.2.4 Achieving the Objectives of the Boating Strategy	3.15
	3.3 Basic Philosophy/Objective for Recreational Boating in New Brunswick	3.15
	3.4 Identification of the Primary Recreational Boating Requirements	3.16
	3.5 Definition of the Key Facilities in the Strategic Provincial Boating Development Concept	3.18
	3.6 Identification of Priorities for the Strategic Boating Facilities	3.22
	3.7 Discussion of the Priority Evaluation Results	3.24
	3.7.1 General Priorities	3.24
	3.7.2 Tourism Related Priorities	3.27

TABLE OF CONTENTS
(Continued)

Chapter Number | Title | Page Number

4.0 PRODUCT DEVELOPMENT 4.1

4.1 Introduction 4.1

4.1.1 Scope and Sequence of Presentation 4.1
4.1.2 Primary Components of the Development Plan 4.3
4.1.3 Preliminary Nature of Program Details for Primary Facilities 4.3
4.1.4 Commentary on Other Locations in Close Proximity to the Primary Facilities 4.4
4.1.5 Boating Service Guidelines 4.5

4.2 Details of the Primary Boating Facilities (Groups I, II and III) 4.5

4.2.1 Facilities With Group I Priority Ratings 4.5

1). Royal Kennebecasis Yacht Club 4.5
2). Saint John Marina 4.13

4.2.2 Facilities With Group II Priority Ratings 4.19

3). Shediac Muncipal Marina 4.19
4). Bas Caraquet Marina 4.20
5). Douglas Harbour 4.21
6). Gagetown 4.24
7). St. Andrews 4.28
8). Pointe du Chene 4.36
9). Bathurst Marina 4.38
10). Belleisle Bay/Long Reach 4.38
11). North Head 4.40

4.2.3 Facilities With Group III Priority Ratings 4.42

12). Saint John Outer Harbour 4.42
13). Bouctouche 4.44
14). Fredericton 4.45
15). Rothesay Yacht Club 4.48
16). Oromocto 4.50
17). Cocagne 4.52
18). Richibucto 4.53
19). Dalhousie 4.54
20). Dipper Harbour 4.56
21). Shippagan 4.57
22). Douglastown 4.58
23). Saint John Power Boat Club 4.60

TABLE OF CONTENTS
(Continued)

Chapter Number	Title	Page Number
	4.2.4 Summary of Primary Facility Improvement Programs	4.60
	4.3 Secondary Items in the Provincial Recreational Boating Program	4.63
	4.3.1 Introduction	4.63
	4.3.2 Maintenance of Riverboat Wharf System	4.63
	4.3.3 Network of Primary Haulout Ramps	4.64
	4.3.4 Installing Moorings in Key Anchorages	4.66
	4.3.5 Land Banking of High Potential Marine Recreation Areas	4.67
	4.3.6 Summary of Secondary Items in the Recreational Boating Development Program	4.67
5.0	MARKETING STRATEGY	5.1
	5.1 Introduction	5.1
	5.2 How Can the Objectives of the Boating Strategy Be Achieved?	5.1
	5.2.1 Cruising Guide	5.4
	5.2.2 Resident Boating - Primary and Secondary Market Segments	5.4
	5.2.3 Non-Resident Transient Activity - Primary Market Segment	5.5
	5.2.4 Non-Resident Transient Activity - Secondary Market Segment	5.11
	5.2.5 Charter/Tour Boat Operations	5.11
	5.3 Marketing Strategy Budget	5.13
6.0	ECONOMIC AND FINANCIAL ANALYSIS OF PROPOSED DEVELOPMENT STRATEGY	6.1
	6.1 Introduction	6.1
	6.2 Summary of Projected Capital Costs	6.1
	6.3 Annual Costs and Revenues	6.4
	6.4 Summary of Benefits	6.5
	1). Growth in Resident Boater Expenditures	6.5
	2). Growth in Non-Resident Transient Boater Expenditures	6.6
	3). Growth in Charter and Tour Boating Businesses	6.6

TABLE OF CONTENTS
(Continued)

Chapter Number	Title	Page Number
6.5	Comparison of Benefits and Costs	6.6
6.6	Sensitivity Analysis	6.9
6.6.1	Introduction	6.9
6.6.2	Impact of Changes in Benefits	6.11
6.6.3	Impact of Changes in Costs	6.12
6.6.4	Results of the Sensitivity Analysis	6.12
6.6.5	Shorter Time Horizon	6.13
6.7	Financial Implications	6.13
6.7.1	Financial Performance of Existing Marinas	6.13
6.7.2	Implementation Roles	6.16

LIST OF TABLES

Table Number	Title	Page Number
2.1	Priority Groupings Based on Potential Tourism Impacts	2.6
2.2	Summary of Boating Strategy Cost Components	2.8
3.1	Summary of Resident Primary Cruising Class Fleet Characteristics (1985)	3.3
3.2	Summary of Resident Fleet in Potential Market Areas Within Various Cruising Distances of New Brunswick	3.5
3.3	Definitions of Rating Criteria Used to Formulate the General Priorities For Recreational Boating Facilities in the Provincial Boating Development Concept	3.23
3.4	Evaluation of Recreational Boating Requirements at Various Locations	3.25
3.5	Priority Groupings Based on Potential Tourism Impacts	3.29
4.1	Guidelines for Provision of Recreational Boating Facilities and Services	4.6
4.2	Summary of Improvement Programs for Primary Recreational Boating Facilities	4.7
4.2	Summary of Improvement Programs for Primary Recreational Boating Facilities (Continued)	4.8
4.3	Summary of Primary Recreational Boating Development Programs	4.63
4.4	Summary of Secondary Items in the Recreational Boating Development Program	4.68
5.1	Marketing Strategy for Recreational Boating Facilities/ Services in New Brunswick	5.3
5.2	Recommended Marketing Approach For The Primary Market Segment of Non-Resident Transient Boating Activity	5.7
5.3	Preliminary Budget for Marketing Strategy for Recreational Boating	5.14
6.1	Summary of Total Capital Costs For Primary Boating Facilities (1986$ x 000's)	6.2

LIST OF TABLES
(Continued)

Table Number	Title	Page Number
6.2	Summary of Capital Costs (1986$ x 000's)	6.3
6.3	Summary of Incremental Benefits From Implementation of Recreational Boating Development Strategy (1986$ x 000's)	6.7
6.4	Comparison of Benefits and Costs of the Primary Facility Improvements in Each of the Priority Rating Groups (1986$ x 000's)	6.10
6.5	Summary of Financial Characteristics of Recreational Boating Marinas	6.14

LIST OF FIGURES

Figure Number	Title	Follows Page Number
1.1	Study Area	1.1
2.1	Proposed Strategic Boating Facilities - East Coast	2.5
2.2	Proposed Strategic Boating Facilities - Bay of Fundy/ Saint John River	2.5
2.3	Boating Facility Priority Ratings	2.5
3.1	Study Area	3.3
3.2	Potential Market Areas for Transient Boating Demand	3.4
3.3	Proposed Strategic Boating Facilities (East Coast)	3.18
3.4	Proposed Strategic Boating Facilities (Bay of Fundy/ Saint John River)	3.18
3.5	Boating Facility Priority Ratings	3.25
4.1	Schematic Development Concept for the Royal Kennebecasis Yacht Club - Option A	4.9
4.2	Schematic Development Concept for the Royal Kennebecasis Yacht Club - Option B	4.10
4.3	Schematic Development Concept - Saint John Marina - Phase I	4.16
4.4	Schematic Development Concept - Saint John Marina - Phase II	4.17
4.5	Schematic Development Concept - Saint John Marina - Phase III	4.17
4.6	General Development Plan - Douglas Harbour	4.21
4.7	Schematic Development Concept - Douglas Harbour	4.22
4.8	Schematic Development Concept - Gagetown (Phase I)	4.25
4.9	Schematic Development Concept - Gagetown (Phase II)	4.26
4.10	Schematic Development Concept - Gagetown (Phase III)	4.27
4.11	Schematic Development Concept - St. Andrews	4.33

LIST OF FIGURES
(Continued)

Figure Number	Title	Follows Page Number
4.12	General Harbour Development Concept - St. Andrews	4.34
4.13	Schematic Development Concept - St. Andrews	4.35
4.14	Schematic Development Concept - North Head Harbour	4.41
4.15	Schematic Development Concept - Outer Saint John Harbour ..	4.43
4.16	Schematic Development Concept - Bouctouche	4.45
4.17	Site of Possible Marina Relocation - Dalhousie	4.55
4.18	Boating Facility Priority Ratings	4.61
4.19	Primary Public Wharves in the Saint John River	4.63
4.20	Key Anchorage Locations in the Saint John River	4.66

1.0 INTRODUCTION

1.1 Study Area

This report describes the results of a comprehensive study of the primary recreational boating requirements for the coastal waters of New Brunswick and the lower Saint John River system (Figure 1.1).

1.2 Management Structure

The project was carried out under the supervision and direction of a Steering Committee which was co-chaired by Mr. E. Pelger of the Department of Tourism, Recreation and Heritage and Mr. D. Cafferty of the Department of Regional Industrial Expansion. Other members of the Steering Committee were Messrs. C. Burry and B. Thompson of the Department of Fisheries and Oceans and Mr. P. Gray of the New Brunswick Community Improvement Corporation.

1.3 Study Team

Fiander-Good Associates Ltd. was the prime consultant for this project. The study was carried out with the assistance of several subconsultants who provided input on various specialized aspects of the project. The subconsultants who participated in the study were:

1). Eastern Designers & Company Ltd.;
2). Economics Research Associates; and
3). Johnson, Sustronk, Weinstien and Associates Ltd.

1.4 Study Scope and Objectives

The scope of this study was to address the development potential of the primary recreational boating activities throughout New Brunswick's coastal waters and the lower Saint John River system. This was complemented by identifying the activities and functions which would realize the greatest tourism impact from non-resident and international boating market segments.

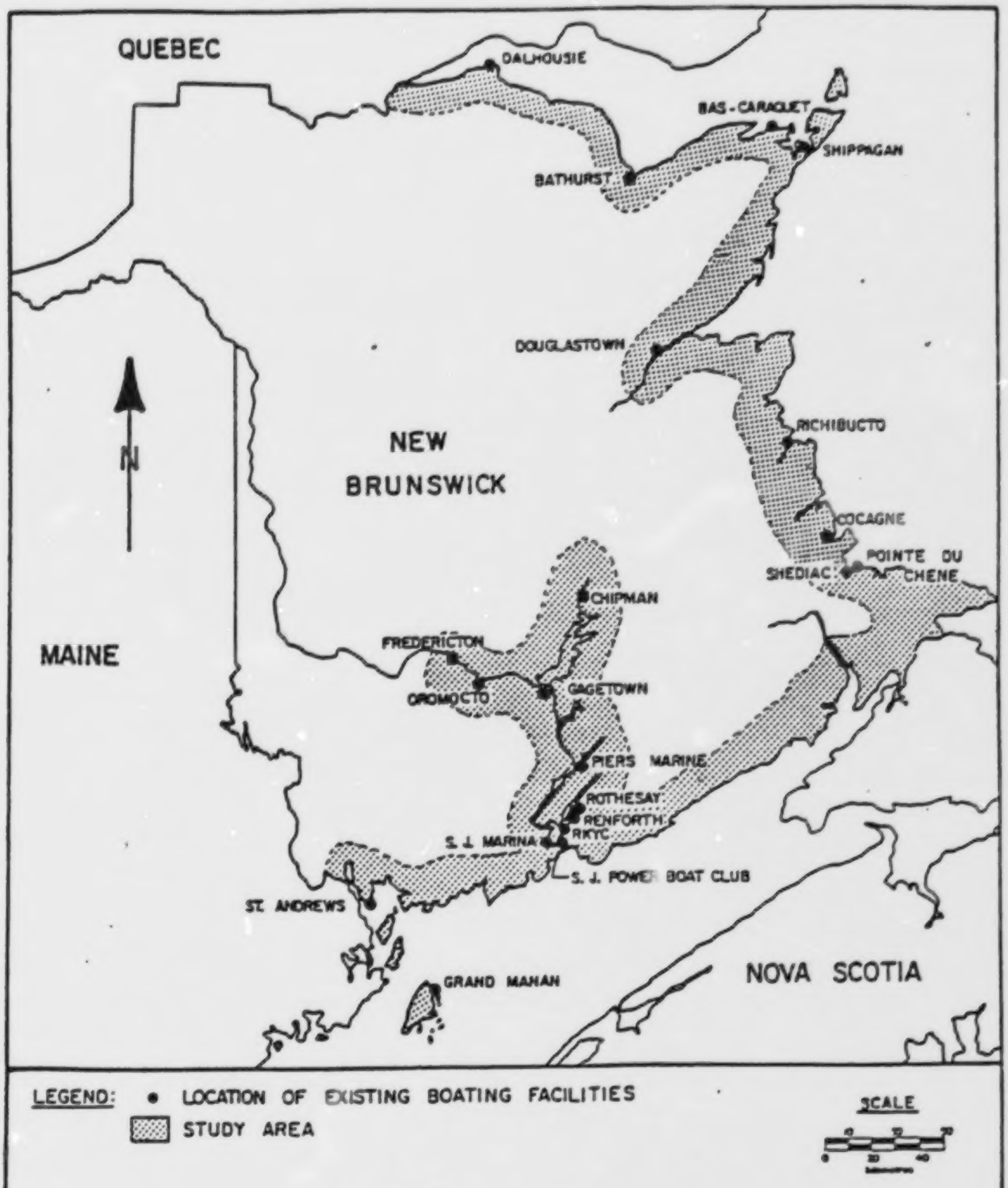

QUEBEC
DALHOUSIE
BAS-CARAQUET
SHIPPAGAN
BATHURST
DOUGLASTOWN
N
NEW BRUNSWICK
RICHIBUCTO
COCAGNE
POINTE DU CHENE
SHEDIAC
CHIPMAN
FREDERICTON
OROMOCTO
GAGETOWN
MAINE
PIERS MARINE
ROTHESAY
RENFORTH
RKYC
S. J. MARINA
S. J. POWER BOAT CLUB
ST. ANDREWS
GRAND MANAN
NOVA SCOTIA
LEGEND: ● LOCATION OF EXISTING BOATING FACILITIES
▨ STUDY AREA
SCALE
0
20
40

FIGURE 1.1: STUDY AREA

FIANDER-GOOD ASSOCIATES LTD.

The boating activities under study were those associated with the primary boat fleet. This fleet has been defined as the resident recreational power and sail boats which are in excess of 20 feet in length and the non-resident transient craft in excess of 25 feet in length.

The proposed provincial recreational boating development strategy addresses the short term (5 year) requirements of three main components of boating associated with the primary fleet (ie. resident boating, non-resident boating and charter/tour operations). The strategy includes priorities, plans, programs and a marketing strategy necessary to satisfy the boating needs and realize the maximum economic impact of recreational boating in New Brunswick.

Specific objectives identified in the Terms of Reference and addressed in the study include:

1). Identifying the current status and participation of recreational boating in New Brunswick and assessing the potential for growth and development in terms of domestic and international markets.

2). Preparing a development concept and outlining the specific requirements for harbours, marinas and related on-site and off-site facilities, services and attractions.

3). Preparing an economic and financial analysis of potential development which can be realized and justified given the existing and short term future demands.

4). Presenting an appropriate development strategy including the priorities, plans, programs and marketing components necessary to realize the full economic potential of recreational boating in the Study Area.

2.0 SUMMARY

This chapter summarizes important features of the proposed development strategy for recreational boating in New Brunswick's coastal waters and the lower Saint John River system.

The following points highlight the key features of the proposed boating strategy and several important observations leading to its formulation:

Fleet Characteristics

1). The resident fleet of primary class vessels totals in excess of 1 150 craft which are generally based throughout the entire Study Area (Figure 1.1). The prime exception is the fact that on the Bay of Fundy, the resident fleet is concentrated at Saint John and in the Passamaquoddy Bay/St. Croix river area with virtually no resident fleet east of Saint John.

2). There is a high degree of participation in transient activity by the resident fleet. This activity represents a large portion of the demand for facilities and services. On average, fifty-five percent of the boating days are spent on trips of two or more days in duration. This tendency toward transient activity is greatest in the Saint John River systems where 65 percent of the boating days are spent on trips of this duration category.

3). In recent years an average of 350 to 400 non-resident craft visit New Brunswick annually. This non-resident activity is approximately equally split between the Saint John River/Bay of Fundy areas and the east coast.

Facility and Service Characteristics

4). Given the relative boating needs throughout the Study Area, recreational boating facilities and services are more extensively developed along the east coast than in the Saint John river and Bay of Fundy regions.

5). The major deficiencies in boating facilities and services occur in the Saint John River system. This area represents a major share of the potential for future development of resident boating. As well, it is the area with the greatest potential for development of non-resident transient boating activity.

6). With the exception of limited private efforts, there has generally been little effort to promote the existing boating facilities and services.

Economic Impacts

7). In 1985 the annual direct economic impact of recreational boating in New Brunswick was about $5.2 million based on the following breakdown:

a). expenditures by the resident fleet of primary class vessels = $4.6 million

b). expenditures made in New Brunswick by occupants of visiting non-resident craft = $0.2 to $0.25 million

c). expenditures by participants in charter and tour boat operations = $0.4 million

8). Should the proposed boating strategy be implemented, it is anticipated that the combined annual expenditure on the above noted three major components of recreational boating could be in the $7.0 to $7.5 million range by 1990 (expressed in terms of 1986 dollars). This represents incremental expenditures above the current levels of $1.8 to $2.3 million per year.

9). The $4.6 million in current annual direct economic impacts by the resident boating fleet generates in excess of 100 full-time jobs, $1.3 million annually in provincial and municipal tax revenues and about $1.2 million annually in federal tax revenues.

10). About one half of the economic impact generated from the visiting transient craft is derived from American vessels visiting primarily the Bay of Fundy and Saint John River regions.

11). In addition to the above noted economic impacts associated with the primary recreational boating fleet, there are also significant additional positive impacts created by the mid and smaller sized trailerable boats which are not included in the above estimates. These additional impacts are most extensive on the east coast and the Saint John River system where a relatively high portion of the fleets are power boats.

Development Potential

12). Given the characteristics of the cruising class fleet resident in neighboring provinces and states, and the distance factor associated with the spacial locations of these jurisdictions relative to the regions of our Study Area, it is evident that the greatest potential for development of non-resident boating is in the Saint John River/Bay of Fundy regions. The primary market for development of this non-resident transient activity is from the New England coast (in particular, Maine to Massachusetts/ Rhode Island).

13). It is evident that the charter and tour boat operations have the potential (with appropriate marketing), to achieve substantial expansions. These businesses, which have potential throughout the entire Study Area (Figure 1.1), could easily double in volume during the short to medium term.

Development Philosophy

14). The underlying philosophy/objective for development of the primary recreational boating activities is to:

> provide a network of facilities and services capable of serving the needs of the following three main components of recreational boating:
>
> a). the resident fleet;
> b). non-resident transient activity; and
> c). charter/tour operations.

Development Strategy

15). The proposed boating strategy has the following two components:

a). Product Development; and
b). Marketing.

16). The product development component proposes key facilities and services to eliminate deficiencies in the existing number and nature of facilities. These deficiencies relate to: a). the extent and type of services available at some of the existing facilities; and b). the non-existence of marina facilities and services in a few key locations. The product development component also proposes designation of a network of non-recreational facilities as "harbours of refuge" for use by recreational boaters during adverse weather conditions.

17). The marketing component of the strategy includes a detailed set of guidelines for promoting boating. This includes identifying guidelines (Table 5.1) for both the primary and secondary geographic market areas for each of the three components of boating noted in the basic development philosophy (Item # 14).

Strategic Boating Facilities

18). Figures 2.1 and 2.2 illustrate the proposed network of strategic recreational boating facilities. It must be recognized that many of the high priority locations are already extensively developed and provide good service to the boating community. The boating facility priority ratings based primarily on meeting the basic needs of the boating community are presented in Figure 2.3. These priorities should be reviewed in conjunction with the proposed development programs for each of these locations which are detailed in Chapter 4.0.

19). Improvement priorities were also assessed based on emphasizing the tourism aspects of recreational boating. This supplementary ranking (Table 2.1) was based on the transient (resident and non-resident) functions, charter/tour features and any special or unique features which complement boating and shore related tourism spin-offs including enhancement of existing tourism destination areas.

Product Development Programs

20). The product development component of the boating strategy includes detailed descriptions of the primary facility improvements and identification of secondary boating facility improvement items. Detailed descriptions of the primary boating facility program are summarized in Table 4.2. The secondary items in the boating facilities program include:

a). Maintaining a portion of the existing network of riverboat wharves scattered throughout the Saint John River/Lakes system (Figure 4.19);

b). Evaluating the implications of a potential network of haulout ramps appropriate for the smaller sized trailerable cruising boats;

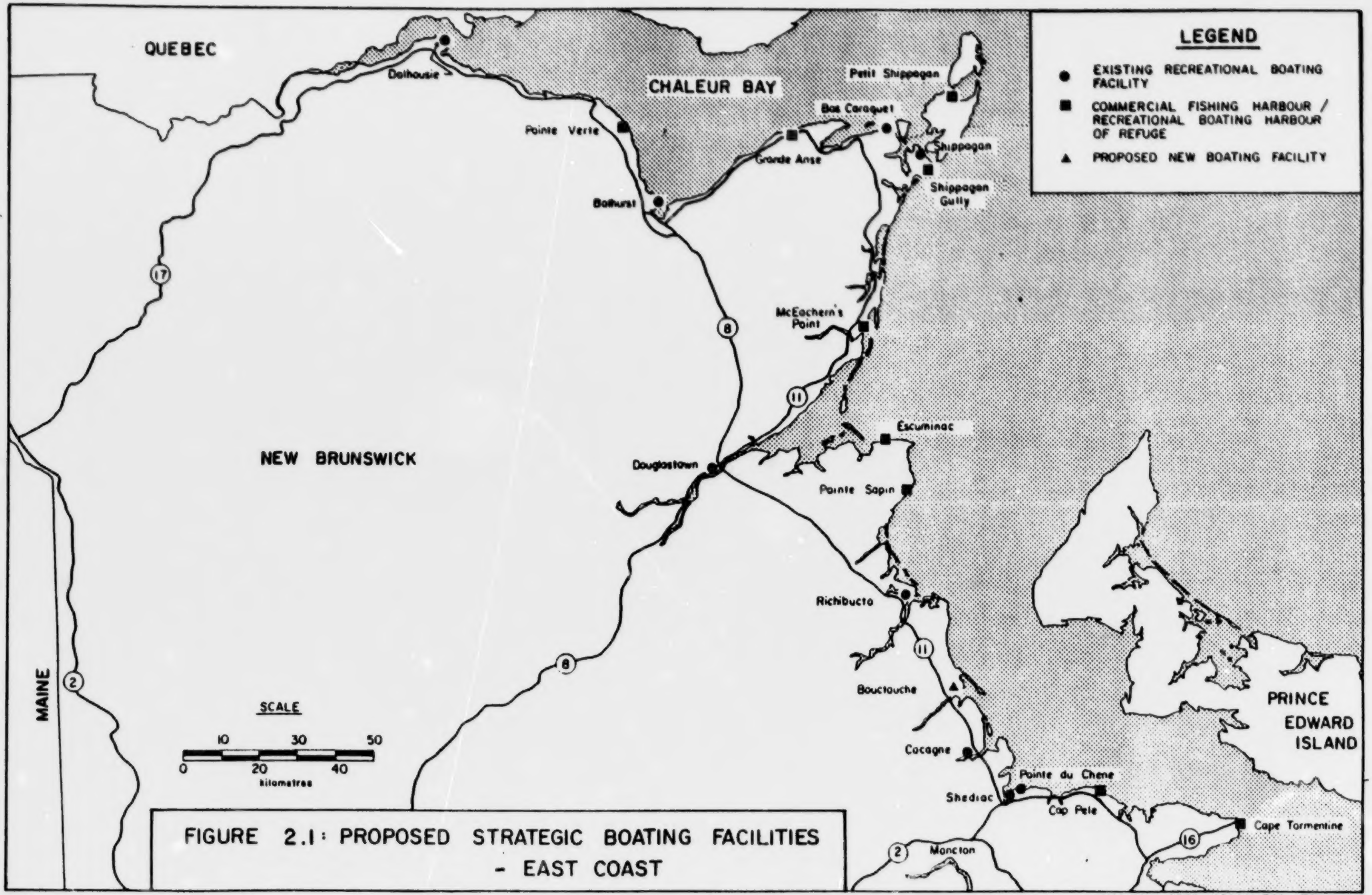

QUEBEC
CHALEUR BAY
LEGEND
● EXISTING RECREATIONAL BOATING FACILITY
■ COMMERCIAL FISHING HARBOUR / RECREATIONAL BOATING HARBOUR OF REFUGE
▲ PROPOSED NEW BOATING FACILITY
Dalhousie
Petit Shippagan
Bas Caraquet
Pointe Verte
Grande Anse
Shippagan
Shippagan Gully
Bathurst
17
8
McEachern's Point
11
Escuminac
NEW BRUNSWICK
Douglastown
Pointe Sapin
Richibucto
11
8
Bouctouche
MAINE
2
SCALE
10
30
50
0
20
40
kilometres
Cocagne
Pointe du Chene
Shediac
Cap Pele
Cape Tormentine
16
2
Moncton
PRINCE EDWARD ISLAND

FIGURE 2.1: PROPOSED STRATEGIC BOATING FACILITIES - EAST COAST

FIANDER - GOOD ASSOCIATES LTD.

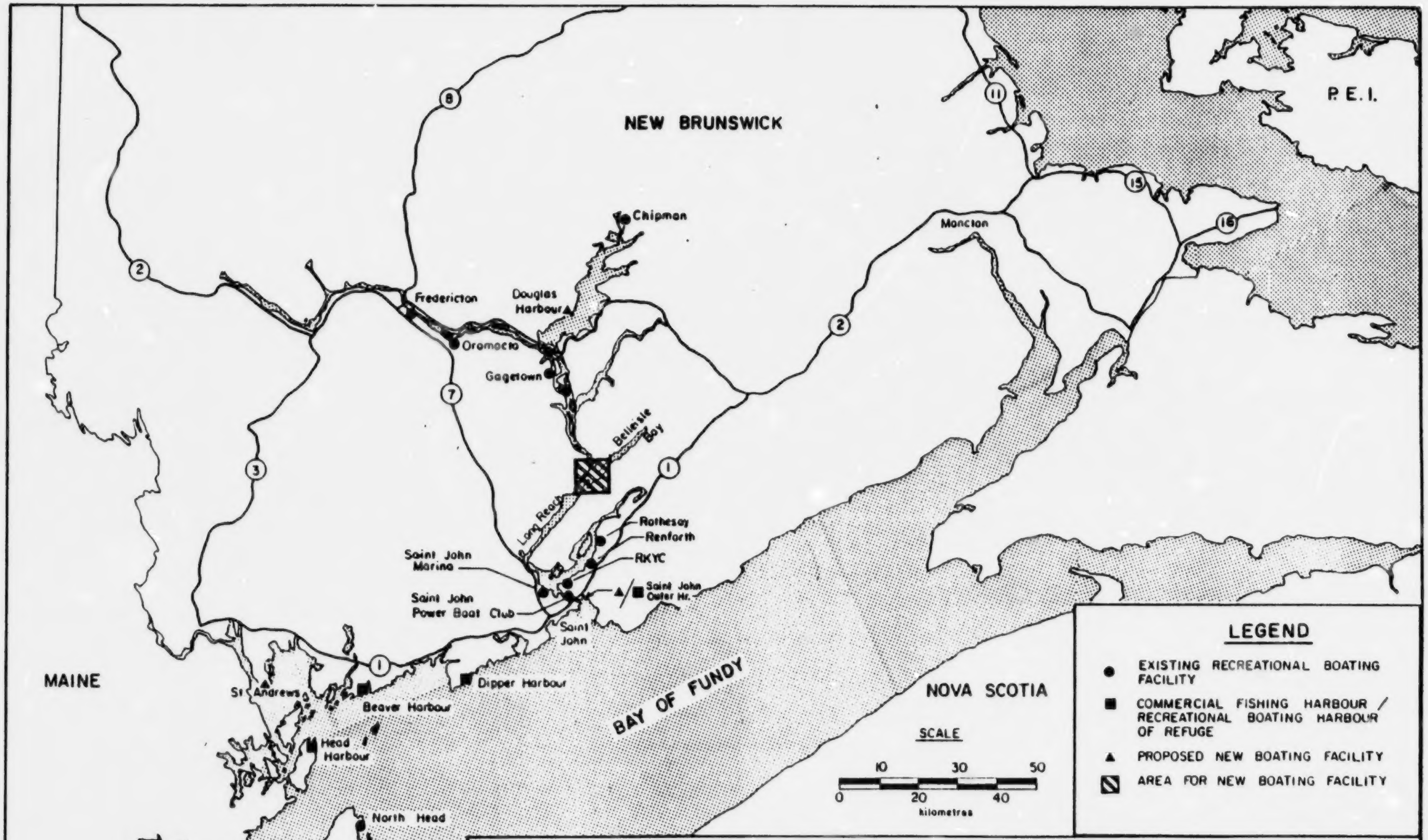

NEW BRUNSWICK
P.E.I.
MAINE
NOVA SCOTIA
BAY OF FUNDY
Chipman
Fredericton
Douglas Harbour
Oromocto
Gagetown
Moncton
Belleisle Bay
Long Reach
Rothesay
Renforth
RKYC
Saint John Marina
Saint John Power Boat Club
Saint John
Saint John Outer Hr.
St Andrews
Beaver Harbour
Dipper Harbour
Head Harbour
North Head
Seal Cove
2
8
11
15
16
3
7
1
SCALE
0
10
20
30
40
50
kilometres
LEGEND
● EXISTING RECREATIONAL BOATING FACILITY
■ COMMERCIAL FISHING HARBOUR / RECREATIONAL BOATING HARBOUR OF REFUGE
▲ PROPOSED NEW BOATING FACILITY
▨ AREA FOR NEW BOATING FACILITY

FIGURE 2.2: PROPOSED STRATEGIC BOATING FACILITIES - BAY OF FUNDY / SAINT JOHN RIVER

FIANDER - GOOD ASSOCIATES LTD.

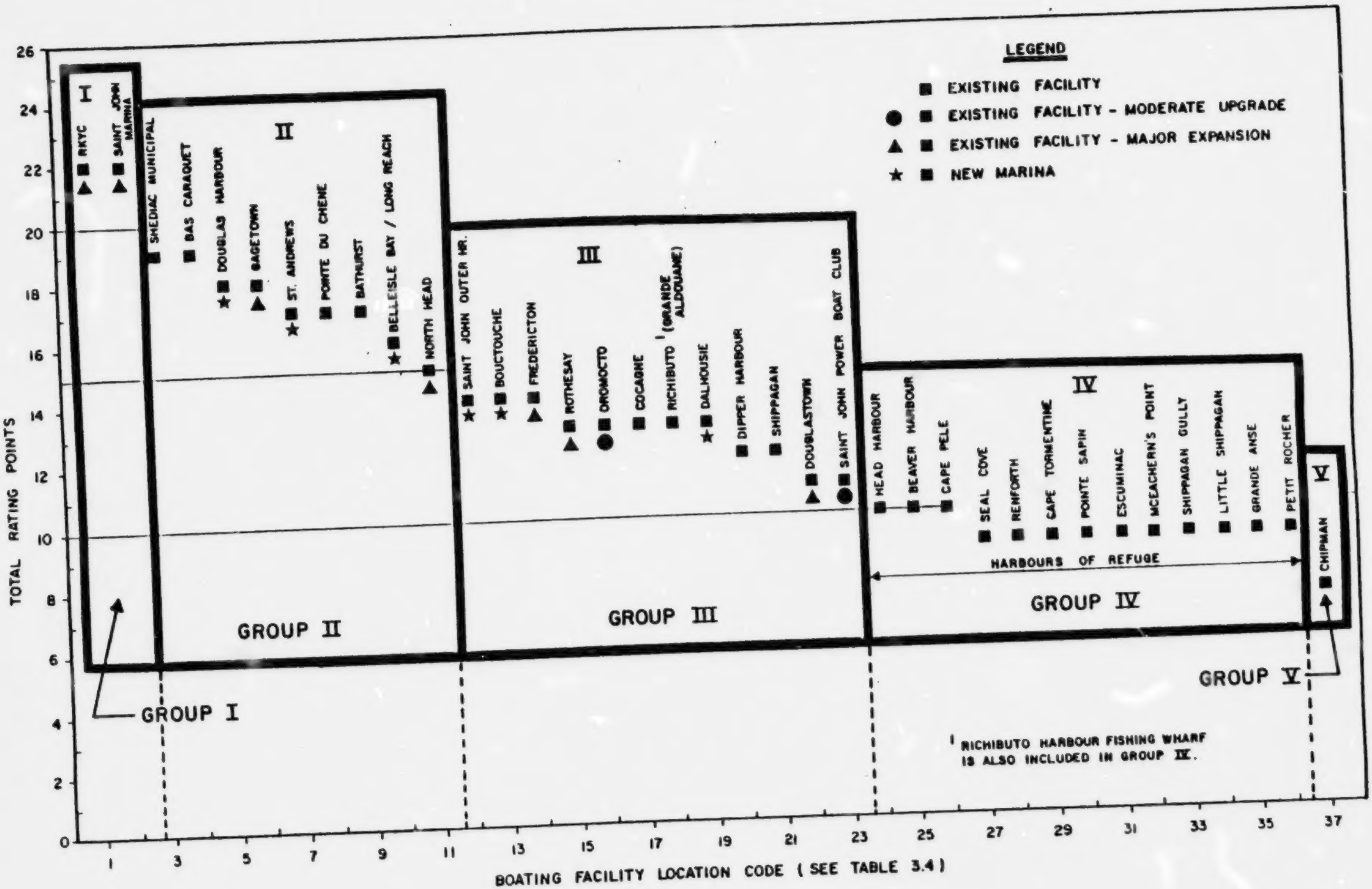


FIGURE 2.3: BOATING FACILITY PRIORITY RATINGS

Table 2.1

PRIORITY GROUPINGS BASED ON POTENTIAL TOURISM IMPACTS

Priority Group	Facility/Location
1	Royal Kennebecasis Yacht Club Gagetown (Colpitts Marina) Saint John Marina Douglas Harbour St. Andrews
2	Belleisle Bay North Head Saint John Outer Harbour Fredericton Shediac Municipal Marina Bas Caraquet
3	Bathurst Bouctouche
4	Pointe du Chene Dipper Harbour Oromocto Cocagne Richibucto Shippagan
5	Rothesay Saint John Power Boat Club Douglastown

c). Installing moorings in designated anchorages (Figure 4.20); and

d). Land banking (or other appropriate protective measures) of waterfront areas which are unique natural recreational resources with high potential for public utilization.

Marketing Strategy

21). The marketing component of the strategy outlines guidelines to assist development of the primary and secondary market segments for the three components of recreational boating. Implementation of the proposed development concept will require a cooperative effort by the private sector and government(s). The greatest potential for expansion of tourism related spin-offs is associated with transient activities (both resident and non-resident). The critical aspect of the marketing strategy is preparation of a comprehensive Cruising Guide. Additional items relating to guidelines for promoting both the boating facilities and services and the natural features of the Study Area are summarized in Table 5.1.

Cost of Boating Strategy

22). The total cost of all elements of the recreational boating strategy is $9.8 to $11.2 million (Table 2.2).

Economic and Financial Aspects

23). The entire boating strategy is viable from an economic perspective. The overall benefit-cost ratio (1.06) for the entire development strategy is in excess of the breakeven value of 1.0. Furthermore, the ratio for some individual facility priority groups is substantially higher. The benefit-cost ratios for all facilities in each of the top priority groups (Figure 2.3) are:

Table 2.2

SUMMARY OF BOATING STRATEGY COST COMPONENTS

	Cost (1986 $ x Million)	
Item	Cost	Cumulative Cost
A. PRODUCT DEVELOPMENT COMPONENT		
1. Primary Boating Facilities (Figure 2.3)		
a). Priority Group I	1.25 to 1.35	1.25 to 1.35
b). Priority Group II	3.81 to 4.11	5.06 to 5.46
c). Priority Group III	4.12 to 5.15	9.18 to 10.61
d). Priority Group IV	0.01	9.19 to 10.62
e). Priority Group V	0.00	9.19 to 10.62
2. Secondary Boating Items		
a). Upgrade/maintain Saint John River wharves (Figure 4.19)	0.015	0.015
b). Study requirements of haulout ramp network for trailerable cruising craft	0.020	0.035
c). Install moorings in several highly utilized anchorages (Figure 4.20)	0.015	0.050
d). Land banking key sites to ensure public accessibility	0.150	0.200
B. MARKETING COMPONENT		
a). Produce Comprehensive Cruising Guide	0.150	0.150
b). General Promotion - Phase I	0.150	0.300
c). General Promotion - Phase II	0.075	0.375

Priority Group I = 1.41
Priority Group II = 1.23
Priority Group III = 0.83

24). The low level of the benefit-cost ratio for the facilities in Group III is negatively influenced by the large potential marina relocation costs at Dalhousie. If this item is removed from Group III, the benefit-cost ratio for all other facilities in this group increases to 1.24. This also increases the overall benefit-cost ratio for all facilities in Groups I to III inclusive to 1.32 from 1.06.

25). The two preceding observations indicate the entire boating strategy is viable from the perspective of the overall economic impacts. However, the financial viability of developments at specific locations is very susceptible to the capital costs associated with infrastructure requirements. Generally, the potential revenues to be generated from these seasonal facilities are not sufficient to amortize the level of capital costs required to implement the necessary facilities/services. Successful implementation of the programs will require initiation by the private sector/municipal governments. There will also be a requirement for major financial assistance by senior levels of government. Currently, the mandate for recreational boating facilities lies primarily with the Small Craft Harbours Branch of the Department of Fisheries and Oceans. The current emphasis of the Department of Fisheries and Oceans' programs is highly oriented towards commercial fishing facilities. Therefore, it is evident that additional senior government involvement would be required to implement the proposed recreational boating strategy. One opportunity for such additional participation with private sector and municipal government initiatives is through the current Canada/New Brunswick Subsidiary Agreement on Tourism Development.

26). Revenues from the private sector/municipal strategic boating facilities should be adequate to support on-going operations and maintenance. The only exception to this general financial characteristic relates to the possible need for medium/long term maintenance dredging at some locations.

27). For most of the facilities in the proposed strategy, additional site specific financial analysis is required as part of the feasibility work regarding engineering and design features to be carried out subsequent to this study.

28). In addition to the benefits quantified in this study, the proposed boating facilities/services will generate yet unquantified benefits to other land-based tourism operations. These facilities would also enhance the creation of the water/sea image which is the target of recent tourism promotion efforts for New Brunswick.

3.0 PROPOSED PROVINCIAL RECREATIONAL BOATING DEVELOPMENT STRATEGY

3.1 Introduction

This chapter presents a proposed development concept for primary recreational boating activities. The concept has been formulated based on detailed evaluation of various factors relating to recreational boating activities and needs throughout the Study Area.

The material in this chapter is structured as a series of subsections each dealing with an essential element of the overall provincial recreational boating development concept and its formulation.

Priorities for development of facilities at specific locations throughout the Study Area are also presented. This is followed in Chapter 4.0 by presentation of the potential improvement programs for each facility in the proposed development concept.

3.2 Basis For Development of a Boating Strategy

A number of key questions concerning recreational boating activities were answered as a result of the background research undertaken during this project. The answers to these questions provide the framework for formulation of the basic philosophy/objective for development of recreational boating in the Study Area. The key questions affecting formulation of a boating strategy relate to:

1). Defining the recreational boating market;

2). Determining the economic justification for a boating strategy;

3). Specifying realistic objectives for a boating strategy.

4). Formulating a basic strategy for achieving the objectives of the strategy.

3.2.1 Definition of Recreational Boating Market

This study indicated the following specific segments of the primary recreational boating market:

1). the resident fleet of primary recreational boats;

2). the transient activity associated with resident recreational craft cruising within the bounds of the Study Area;

3). non-resident transient activity generated by craft from locations outside of New Brunswick;

4). charter operations; and

5). tour operations.

Resident Fleet Characteristics

The resident fleet is the major portion of the overall primary fleet requiring facilities.

Table 3.1 provides a summary of the resident fleet of primary vessels in excess of 20 feet in length which are based in the Study Area (Figure 3.1). The total fleet represents in excess of 1 150 vessels. These are approximately equally distributed between power and sailboats. About 59 percent of the fleet is based in the Saint John River/Bay of Fundy area. In this area, about 60 percent of the primary fleet is sailboats. On the east coast, only about 38 percent of the primary fleet is sailboats.

A key component of resident boating requirements are those associated with transient activities. These functions represent a large portion of the overall demand since most boaters spend much of their annual boating activity on overnight and extended trips.

Table 3.1

SUMMARY OF RESIDENT PRIMARY CRUISING CLASS FLEET CHARACTERISTICS* (1985)

Area	Number of Boats Over 20 Feet in Length		
	Power Boats	Sailboats	Total
East Coast (Central/North)	244	42	286
Shediac Area	52	139	191
Total East Coast	296	181	477
Upper Saint John River (Above Evandale)	29	58	87
Lower Saint John River (Below Evandale)	228	312	540
Bay of Fundy	15	35	50
Total Saint John River/ Bay of Fundy	272	405	677
Overall Total	568	586	1 154

* This includes only those craft normally kept in the water at a marina/recreational boating facility. Many additional craft are used on the basis of launching from trailers and cartops.

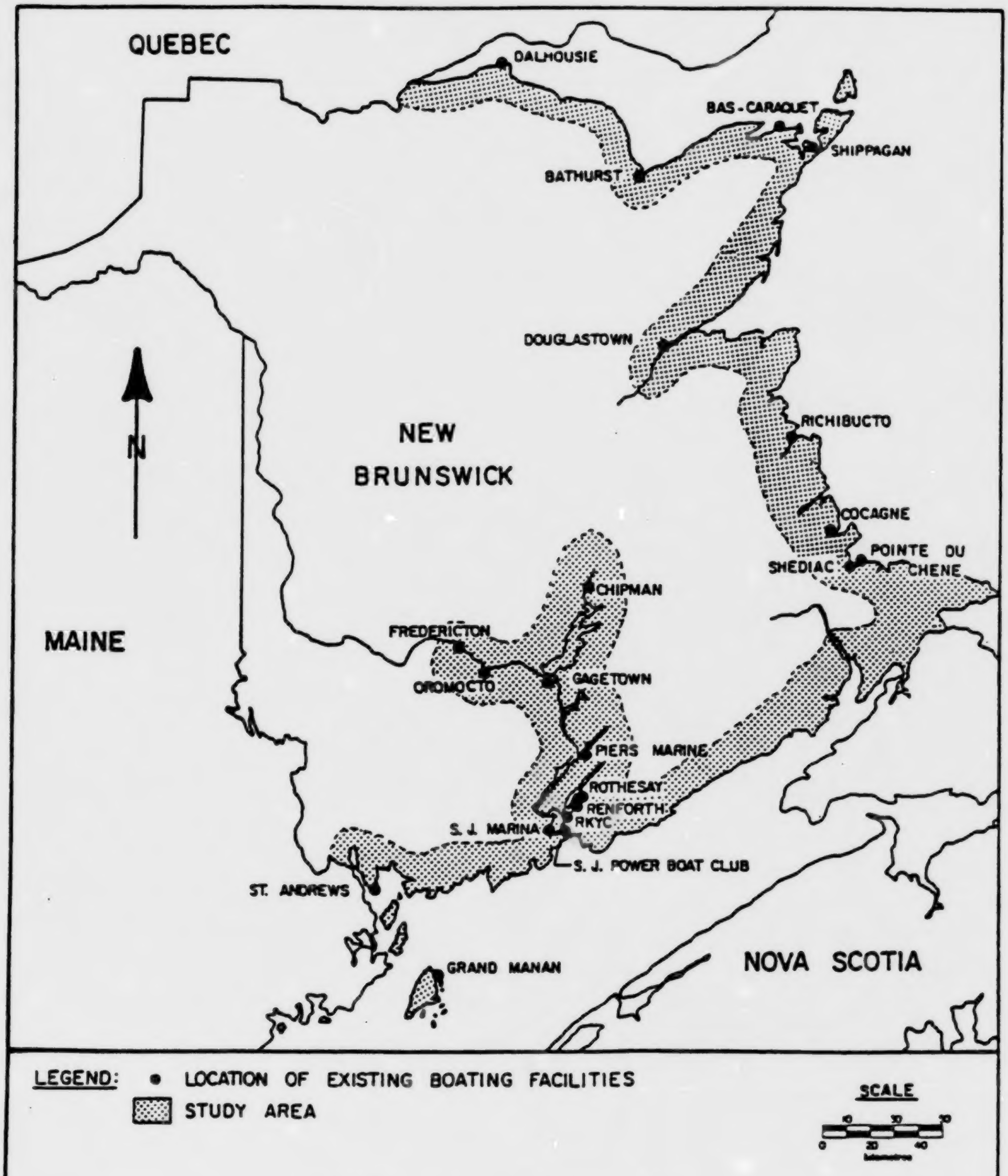

QUEBEC
DALHOUSIE
BAS-CARAQUET
SHIPPAGAN
BATHURST
DOUGLASTOWN
N
NEW BRUNSWICK
RICHIBUCTO
COCAGNE
POINTE DU CHENE
SHEDIAC
CHIPMAN
FREDERICTON
OROMOCTO
GAGETOWN
MAINE
PIERS MARINE
ROTHESAY
RENFORTH
RKYC
S. J. MARINA
S. J. POWER BOAT CLUB
ST. ANDREWS
GRAND MANAN
NOVA SCOTIA
LEGEND:
● LOCATION OF EXISTING BOATING FACILITIES
▨ STUDY AREA
SCALE
10 30 50
0 20 40
kilometres

FIGURE 3.1: STUDY AREA

FIANDER-GOOD ASSOCIATES LTD.

Non-Resident Transient Activity

Figure 3.2 provides an overview of the immediate Study Area and potential market areas for cruising class vessels which can be attracted to New Brunswick.

Study research included extensive evaluation of the characteristics of fleets based in the neighboring provinces and states. This analysis included isolation of the cruising class* fleet characteristics for both power and sail boats in all of the adjoining provinces/states identified in Figure 3.2.

Table 3.2 summarizes the results of this analysis of the potential markets for attracting transient vessels to New Brunswick from adjoining regions. This table presents a consolidation of data regarding cruising class fleet characteristics for the following four potential market areas:

1). Prince Edward Island;
2). Nova Scotia;
3). Quebec; and
4). the northeast coast of the United States.

For comparison purposes, the numbers of cruising class vessels registered in each of these regions within various distances of the following three general destination regions of our Study Area have been summarized:

1). southeast New Brunswick;
2). northeast New Brunswick; and
3). Saint John (ie. the entrance to the Saint John River).

The data in Table 3.2 indicates that the northeast American coastal states represent a potential market much greater than that associated with any of the three adjoining provinces in Canada.

---

* Cruising class vessels are those in excess of 25 feet in length.

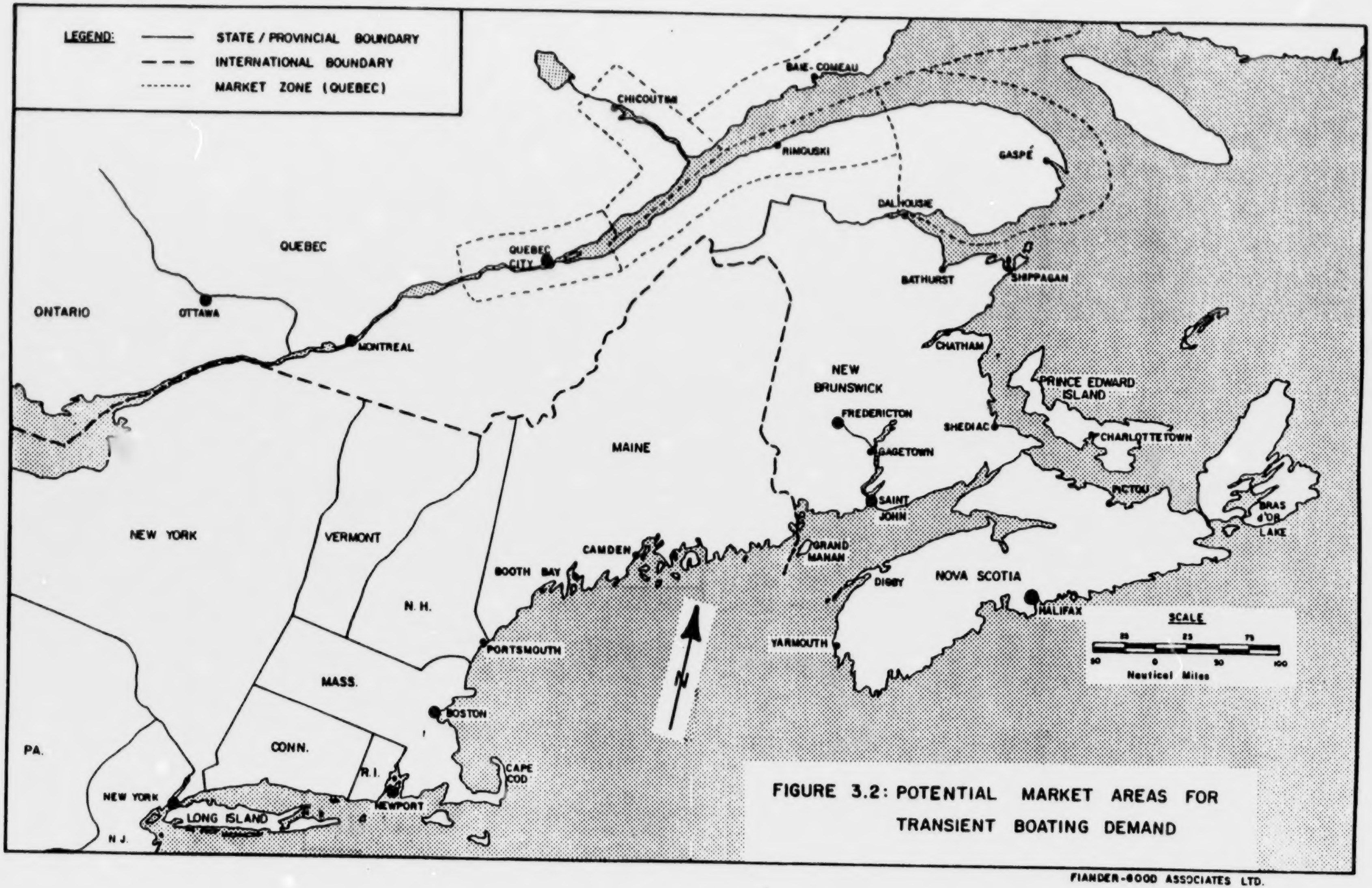

LEGEND:
STATE / PROVINCIAL BOUNDARY
INTERNATIONAL BOUNDARY
MARKET ZONE (QUEBEC)
BAIE-COMEAU
CHICOUTIMI
RIMOUSKI
GASPÉ
DALHOUSIE
QUEBEC
QUEBEC CITY
BATHURST
SHIPPAGAN
ONTARIO
OTTAWA
MONTREAL
CHATHAM
NEW BRUNSWICK
PRINCE EDWARD ISLAND
FREDERICTON
SHEDIAC
CHARLOTTETOWN
GAGETOWN
MAINE
PICTOU
SAINT JOHN
BRAS d'OR LAKE
NEW YORK
VERMONT
CAMDEN
GRAND MANAN
BOOTH BAY
DIGBY
NOVA SCOTIA
HALIFAX
N. H.
SCALE
25
25
75
50
0
50
100
Nautical Miles
YARMOUTH
PORTSMOUTH
MASS.
N
BOSTON
PA.
CONN.
CAPE COD
R.I.
NEW YORK
NEWPORT
LONG ISLAND
N.J.

FIGURE 3.2: POTENTIAL MARKET AREAS FOR TRANSIENT BOATING DEMAND

FIANDER-GOOD ASSOCIATES LTD.

Table 3.2

SUMMARY OF RESIDENT FLEET IN POTENTIAL MARKET AREAS WITHIN VARIOUS CRUISING DISTANCES OF NEW BRUNSWICK

	# of Cruising Class Vessels - 1983*		
Potential Market Area	Southeast N.B.	Northeast N.B.	Saint John
Within 100 miles from:			
- P.E.I.	80	0	-
- Nova Scotia	135	-	62
- Quebec	-	150	-
- United States	-	-	-
Within 200 miles from:			
- P.E.I.	80	80	-
- Nova Scotia	208	208	177
- Quebec	0	155	-
- United States	-	-	4 650
Within 350 miles from:			
- P.E.I.	80	80	-
- Nova Scotia	208	208	1 000
- Quebec	470	775	-
- United States**	-	-	17 400
Within 475 miles from:			
- P.E.I.	80	80	-
- Nova Scotia	208	208	1 000
- Quebec	470	1 100	-
- United States***	-	-	47 000

---

* Estimates from Quebec are based on extrapolation of the 1979 data obtained from "Analyse de la Politique des Ports de Plaisance, Region du Quebec", Roche Associes ltee, Peches et Oceans, Fervier, 1980. The 1979 data has been expanded to reflect the 1983 values. For Nova Scotia and Prince Edward Island the estimates are for 1985 rather than 1983. However, these numbers are relatively low compared to the values for the United States. Cruising class vessels are those over 25 feet in length.

** This includes Maine, New Hampshire, Vermont, Massachusetts and Rhode Island.

*** This includes the New England states noted in the above footnote plus those in Connecticut, New York and New Jersey.

The results are even more striking for the longer trip distance categories. The first major incremental increase in the potential market on the American seaboard occurs between the 200 and the 350 mile trip ranges. For this length of trip increment, the total number of cruising class vessels registered in the external American market area increases from 4 650 to 17 400 vessels. Similarly, the magnitude of the potential market increases by an additional factor of about 2.7 to a total of 47 000 cruising class vessels for trips with lengths in the 350 to 475 nautical miles range.

In contrast to this large potential from the American coast, the maximum market potential from adjoining provinces is minimal. Even in this longest trip category, the greatest potential from adjoining Canadian provinces is to the Saint John area. This potential relates to the Nova Scotia market. The Nova Scotia area represents a cruising class fleet of about 1 000 vessels. The greatest potential for the Gulf coast area of New Brunswick is for the northeast coast region which has a market of about 1 400 vessels to draw upon.

When reviewing the data in Table 3.2, it is important to recognize that these numbers represent the resident fleet in the various potential market areas external to our Study Area. This does not imply that these non-resident fleets would all travel to New Brunswick. Only a very small portion of these fleets could be attracted to New Brunswick on an annual basis.

Based on the detailed evaluation of existing transient activity and the potential cruising class fleets in adjoining areas from which future transient activity can be generated, the following observations were made:

1). The non-resident cruising activity to facilities along the east coast of New Brunswick can continue to be served within the capabilities of the facilities necessary to accommodate the resident primary recreational boating fleet. For the east coast, the potential market of non-resident cruising class vessels within reasonable cruising distance is not sufficiently large to justify expansion of facilities simply to accommodate possible increases in non-resident transient visitation levels.

2). The greatest potential for expansion of non-resident visitation is in the Saint John River/Bay of Fundy regions.

3). The maximum potential for increased non-resident transient activity in the Saint John River/Bay of Fundy area is that which could be derived from the New England coast. The primary market area being the states to and including Rhode Island. The secondary market area would be the mid-coast states betweeen Connecticut and New Jersey, inclusive.

4). At some recreational boating facilities in the Saint John River and portions of the Bay of Fundy, facility/service developments should recognize the need to provide marginal improvements in capacity in excess of those which would be required for the resident fleet. This is necessary in order to accommodate the potential non-resident transient activity.

Charter Operations

Existing charter operations in New Brunswick are limited in number. This activity is relatively new but has been experiencing rapid growth during recent years. Most of the existing charter businesses have established in the early 1980's with the oldest being established about eight years ago. The existing charter businesses are concentrated in the Saint John River with one business being located in St. Andrews. With the exception of small boat and daysailer rentals, there are currently no formal bareboat charter services provided on the east coast of New Brunswick. However, this area has good potential for development of this type of business.

In addition to the sailboat charter operations in the Bay of Fundy and Saint John River, there is one operator providing houseboat charter services on the Saint John River.

A total of 14 vessels (including 3 houseboats) are involved in the existing charter activities. These businesses provide seasonal jobs for a number of individuals. Typically the peak season for the charter business includes the months of July and August. Shoulder periods in both June and September also exist for most of these operations. In particular, the weekend periods are normally booked during the June and September periods.

The specific characteristics of the charter businesses vary depending on the individual operation. However, there are some general observations which are relevant. These include:

1). although some of the charter operations have only been in service for a limited period, most have been able to develop a base volume very quickly;

2). the geographical distribution of charter customers varies from year to year. However, some general patterns are apparent. For the most part, the sailboat charter operations on the Saint John River draw from markets in the Ontario, Quebec, Nova Scotia, Newfoundland and the New England states. The Massachusetts area appears to be a major source of charter customers from the eastern United States.

3). The houseboat charter operation tends to draw a larger portion of their clientele from New Brunswick and the Maritime provinces.

4). The primary reasons for chartering in New Brunswick are:

    a). The desire by Canadians to sail in the east. Many of these people are familiar with sailing environments on the

American coast and other areas of Canada (particularly Ontario) and simply wish to experience a different sailing environment.

b). There is a specific desire to sail the Saint John River because of the unique characteristics of this inland water system. Generally, knowledge of this system is derived from either previous experience or exposure to other boaters who have told them of this area. The primary attractions of the Saint John River system are the peace and quiet, lack of congestion and associated delays and aggravations, and the tremendous variety of natural features of this pristine waterway. Typically, charter customers are looking for an opportunity to relax in private locations (ie. "gunkholing"). They basically exhibit characteristics common to most cruisers. That is, they are interested in "gunkholing" rather than having constant access to a vast network of full service marinas. These people wish to spend much of their time cruising in the relatively secluded areas while stopping for lunch and rest stops in pleasant, quiet, safe locations. Similarly, their preference for overnight stops is at secluded, protected coves where they can safely drop anchor or pick up a secure mooring.

5). Although charter customers are generally not looking for constant access to a vast network of full service marinas, there are specific features which would enhance the desirability of the river system to this group. The primary needs regarding improved marina services have been incorporated into the general development programs for the primary recreational boating facilities described in detail in Chapter 4.0.

Tour Boat Operations

Another important element of the recreational boating activity which provides a significant contribution to the seasonal economy of the province is that associated with tour boat operations. These functions include sightseeing tours, fishing and whale watching. Whale watching activities are restricted to the Bay of Fundy and fishing tour activities are limited primarily to the following two general locations:

1). in the Chaleur Bay; and
2). to a lesser extent, in St. Andrews.

Tour boat operations exist at 11 locations throughout the coastal and river waterways of the Study Area. A total of 13 tour businesses exist with 7 of these being on the east coast. Three of the four tour operations on the Bay of Fundy are based out of St. Andrews. The other tour operation in the Bay is the whale watching service out of North Head, Grand Manan.

The Saint John River operations are located at Saint John and Fredericton. The Saint John operations include the harbour tour and a river tour operated out of the Saint John Marina at Ketepec. The other tour service on the river is that associated with the Pioneer Princess paddle wheel riverboat which has operated for the past two seasons at Fredericton/Oromocto.

These businesses provide a substantial number of part-time jobs during the recreational boating season. Although many of these activities have their peak during the primary boating season in July and August, several of them extend, at least on a less frequent basis, into the June and September/ October periods. In aggregate, the tour/fishing operations which existed during the 1985 season provided a significant positive impact on the overall recreational boating activity. More importantly, these functions exhibit good potential for new and expanded services at many locations throughout the Study Area.

Consideration of the basic infrastructure necessary to accommodate the tour and charter operations has been integrated into the infrastructure requirements presented as part of the primary facility improvement program described in Chapter 4.0. In addition, these businesses need increased promotion and advertising.

3.2.2 Economic Justification for a Recreational Boating Strategy

The work conducted as part of this study indicated that the direct economic impacts of recreational boating on the provincial and regional economcy is substantial.

The resident boating participants who own the primary fleet of vessels generate total annual expenditures in the millions. The expenditures by this group includes a combination of costs associated with craft related items, trip related items (fuel and other), and boat purchases. These expenditures do not all relate directly to goods and services generated in the province. However, the estimated total expenditure by this group for the goods and services noted in this paragraph which are New Brunswick based, is currently in excess of 4.6 million dollars annually. The general economic impacts of these expenditures by the resident recreational boaters generate in excess of 100 full time jobs, 1.3 million dollars annually in provincial tax revenues and about 1.2 million dollars annually in federal tax revenues.

The total annual contributions to the economy in 1985 for the three main components of recreational boating included in this study is in the 5.25 million dollar range based on the following breakdown:

a). 4.6 million dollars in annual expenditures by the resident boaters for New Brunswick based goods and services;

b). 0.2 to 0.25 million dollars annually in expenditures made in New Brunswick by visitors on non-resident transient craft; and c). 0.42 million dollars annually in expenditures by participants in charter and tour boat operations.

Given the estimated expansion potential defined in the following subsection, the total annual expenditures for New Brunswick based goods and services made by the three primary components of recreational boating could increase to about 7.5 million (1986) dollars within 5 years. The non-resident transient activity and the charter/tour operations could represent in excess of $1.5 million of this annual total.

3.2.3 Objectives of a Provincial Recreational Boating Strategy

Given the existing level of activity and potential for development of the three main components of recreational boating in New Brunswick, the following objectives are considered realistic:

1). With provision of appropriate facilities and services, the incremental growth in the resident fleet of primary class recreational boats is expected to be 5 percent per year. It is also anticipated that there will be a continued trend towards marginal increases in the average size of vessels. Future trends should also indicate a slightly higher rate of growth for power boats compared to sailboats. One objective of the boating strategy should be to ensure that the basic facility and service improvements for the recreational boating system adequately address the homeport requirements of this resident primary sized fleet.

2). The existing primary sized resident fleet represented a total of about 1 150 vessels in 1985. Most of these (particularly those in the Saint John River/Bay of Fundy areas) participate extensively in transient activity. Generally, over half of the total boating days incurred are on boating trips of greater than one day's duration. One objective of the boating strategy should be to enhance the transient opportunities for resident vessels.

3). The non-resident transient activity in 1985 represented visitations by a total of 370 non-resident vessels. About 170 of these non-resident boats were American craft visiting the Bay of Fundy and Saint John River system with the remaining 200 non-resident craft visiting the east coast. The Saint John river system is an established cruising destination for American cruisers. This group represents the main segment of the non-resident market. This American transient activity in the Saint John River system and the Bay of Fundy has major potential for future development. This potential exists due to the proximity of the River/Bay areas to the large fleets of cruising class boats resident along the New England coast. On the other hand, the non-resident traffic on the east coast is dependent on the relatively limited cruising class fleets in Prince Edward Island and portions of Nova Scotia and Quebec. The limited fleet in these areas are critical constraints on the extent to which non-resident transient activity can develop on the east coast. Therefore, the Saint John River system should be the main target of efforts to increase non-resident transient activity. Efforts to increase this activity should be oriented at the New England coast. The primary market area should be the states between Maine and Rhode Island inclusive.

4). Although the current level of visitation by non-resident American craft is only about 170 boats per year, it is anticipated that, with appropriate promotion, this number would easily be increased to in excess of 500 boats per year. Such an increase would raise the total participation by the non-resident American fleet to in excess of 40 percent of the total primary recreational boating fleet resident in the Bay of Fundy and Saint John River systems. This creates the potential for substantial benefits to be derived by expenditures made while the non-resident vessels are in the province. For the Saint John River system, the objective should be to increase non-resident transient activity by at least two to three fold. For the east coast, the objective should be to accommodate nominal growth of non-resident transient activity.

5). Although the total non-resident fleet is relatively large compared to the resident fleet, the non-resident vessels would not create the same proportionate demand for the primary recreational boating facilities. This occurs because the non-resident fleet within the Study Area at any point in time would be spread out through the waterway. This leads to an objective of developing a system of boating facilities and services which incorporates the non-resident transient needs into the basic requirements which, in the short term, will continue to be controlled primarily by the resident fleet.

6). Non-resident vessels do require opportunities for access to marina facilities which provide a general range of services including provision of fuel (diesel and gasoline), water, ice and general water/land access opportunities. To a limited extent these transient vessels also require temporary berthing and mooring. However, the majority of overnight occasions by the non-resident fleet are spent at isolated, remote anchorages. This latter feature illustrates one of the primary reasons why these non-resident vessels visit the Saint John River system. That is, they wish to partake of the natural, tranquil and secluded features of the expansive river system. Therefore, an objective would be to provide sufficient capacity at marina facilities to meet the basic needs of resident and non-resident fleets without expanding facilities and services to a level which destroys the natural, pristine beauty of the existing cruising areas.

7). Charter operations are developing for the same reasons that non-resident transient cruising vessel activity is increasing. Similarly, tour operations are developing because of the recent interest which has developed in both sightseeing and fishing tour activities. Both of these functions have good potential but have received very little previous attention with regard to promotion and marketing efforts. It is evident that a key objective of the provincial boating strategy should be to enhance the expansion opportunities for charter and tour boat operations.

3.2.4 Achieving the Objectives of the Boating Strategy

This section addresses the key issue of determining the type of development strategy required to achieve the above noted objectives.

The strategy which will enable realization of the objectives for recreational boating development can be broken into the following two components:

1). Product Development: This involves private sector and municipal government initiatives in providing the basic facilities and services required to accommodate the resident homeport and transient activities as well as non-resident transient activities. This must also include provision of adequate facilities and services to accommodate the charter and tour boat operations.

2). Marketing: This includes identifying a set of marketing guidelines to be used cooperatively by the private sector/municipal governments and senior levels of government to promote both the facilities and services that are available and the natural features which are the primary attractions of the Study Area.

3.3 Basic Philosophy/Objective for Development of Recreational Boating in New Brunswick

The main component of economic impact and the primary source of demand for major recreational boating facilities in New Brunswick is derived from the resident fleet. At the same time, large contributions to the economy are derived from the non-resident transient activities as well as the charter and tour operations. These observations indicated that the basic philosophy for a provincial recreational boating strategy in New Brunswick should be:

> To provide a network of facilities and services capable of serving the needs of the following three main components of recreational boating:
>
> a). the resident fleet;
> b). non-resident transient activity; and
> c). charter/tour operations.

3.4 Identification of the Primary Recreational Boating Requirements

Given the above basic philosophy/objective of the boating strategy, a framework for the provincial recreational boating development concept was formulated. This involved focusing on all three components of recreational boating. Both the homeport and transient requirements of the resident fleet were given explicit consideration. Where appropriate, requirements of non-resident transient activity were also considered. As well, the unique requirements of the charter/tour operations were addressed.

In aggregate, these considerations resulted in defining a system of boating facilities and services capable of accommodating the needs/requirements of the recreational boaters being considered in this study. Subsequently, a set of priorities was established for the various elements of the product development component of the provincial development strategy. These priorities, in conjunction with the system elements identified in the basic development programs, and an appropriate marketing plan, provide an overall strategy for development of the recreational boating facilities and services.

The facilities/services component of the recreational boating strategy was based on evaluating the key requirements for the primary elements of recreational boating activity throughout the various subregions of the Study Area. This evaluation stressed both the existing and potential homeport and transient resident fleet requirements. As well, existing and future non-resident transient activity and charter/tour operations were considered, where appropriate. This included evaluating the locational aspects of the fleet activities and the place of residence for the fleet owners.

Figure 3.1 illustrates the location of existing recreational boating facilities. These facilities are located near the concentrations of population owning the primary resident recreational boating fleet.* Each of these facilities/locations was reviewed with respect to the following evaluation criteria:

1). resident (homeport) fleet size;

2). resident (homeport) fleet growth potential;

3). current level of transient activity (by both resident and non-resident craft);

4). potential future level of transient activity (resident and non-resident);

5). role of the harbour/facility as a harbour of refuge for recreational boats during adverse weather conditions;

6). the current and potential role in charter/tour boat operations; and

7). special or unique features for each facility/location.

---

* The primary resident fleet is that which involves vessels more than 20 feet in length.

The evaluation at this stage was based on the general location in question rather than specific sites within a given area. This applies both to a situation where more than one site may be appropriate or where there may be potential for relocating existing facilities.

It should also be noted that assessment of the current demand resulted in identifying some potential additional facilities which are considered necessary to alleviate apparent basic deficiencies in a few areas. Each of the existing and proposed new facilities was evaluated on the basis of a point rating scheme utilizing the seven criteria noted above.

3.5 Definition of the Key Facilities in the Strategic Provincial Boating Development Concept

The key facilities in the strategic boating development concept are identified in Figures 3.3 and 3.4. Many of these exist but may require expansion. However, some key facilities do not currently exist. These new facilities are considered necessary to rectify serious deficiencies in the services currently available for the resident and non-resident recreational boating fleets in the areas identified. The two types of new facilities which have been proposed to alleviate major deficiencies are:

a). designation of harbours of refuge at strategic locations in the coastal waters (and to a limited extent, in the Saint John River system); and

b). provision of general service marinas at specific key locations.

The type and extent of services which should be provided at the existing and proposed new marinas are described in Chapter 4.0. However, this section provides a brief description of why both of these types of facilities are critical to the overall provincial development plan for recreational boating.

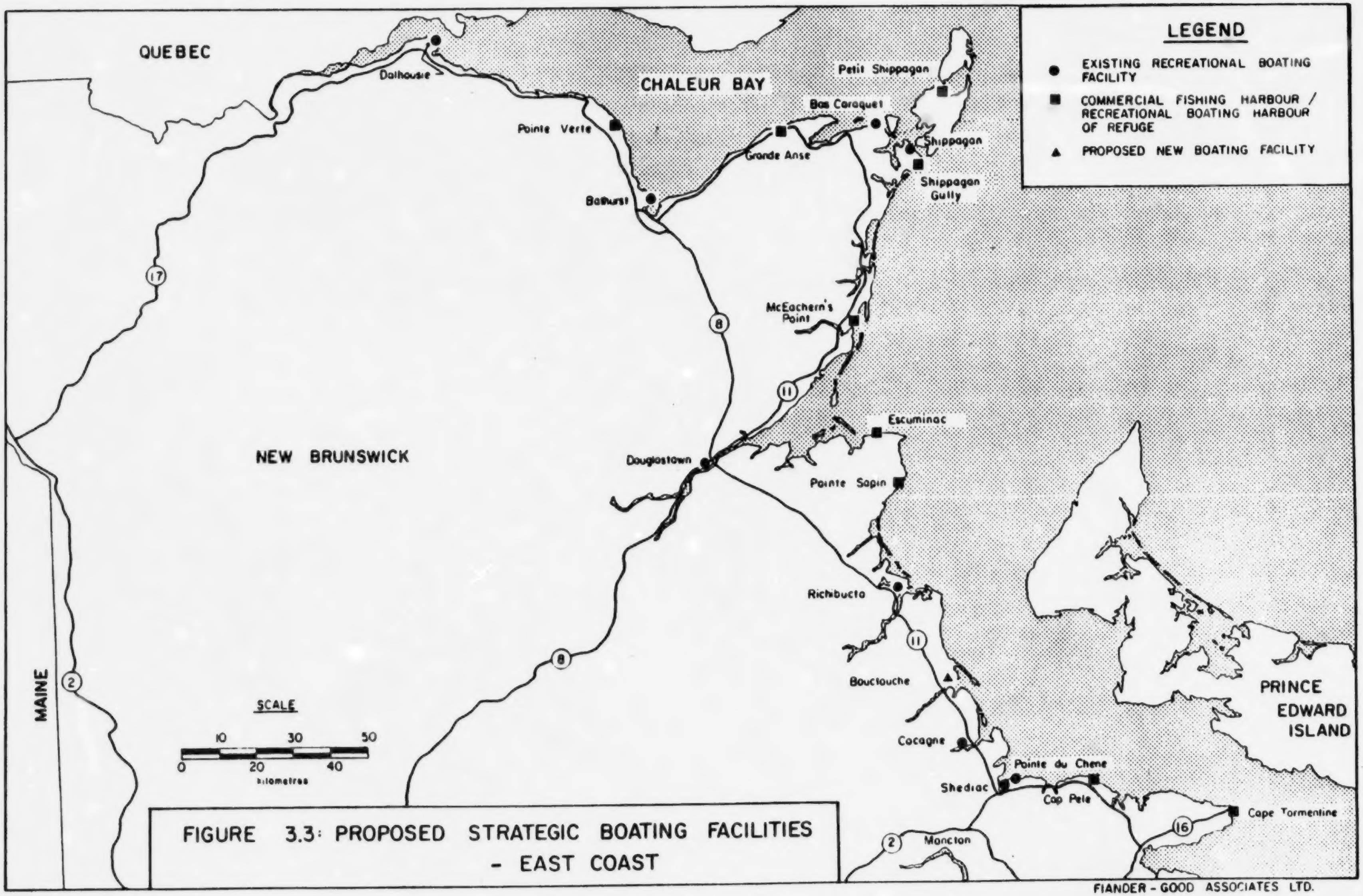

LEGEND
● EXISTING RECREATIONAL BOATING FACILITY
■ COMMERCIAL FISHING HARBOUR / RECREATIONAL BOATING HARBOUR OF REFUGE
▲ PROPOSED NEW BOATING FACILITY
QUEBEC
MAINE
NEW BRUNSWICK
CHALEUR BAY
PRINCE EDWARD ISLAND
Dalhousie
Pointe Verte
Bathurst
Grande Anse
Bas Caraquet
Petit Shippagan
Shippagan
Shippagan Gully
McEachern's Point
Escuminac
Douglastown
Pointe Sapin
Richibucto
Bouctouche
Cocagne
Shediac
Pointe du Chene
Cap Pele
Cape Tormentine
Moncton
17
8
11
2
16
SCALE
0
10
20
30
40
50
kilometres

FIGURE 3.3: PROPOSED STRATEGIC BOATING FACILITIES - EAST COAST

FIANDER - GOOD ASSOCIATES LTD.

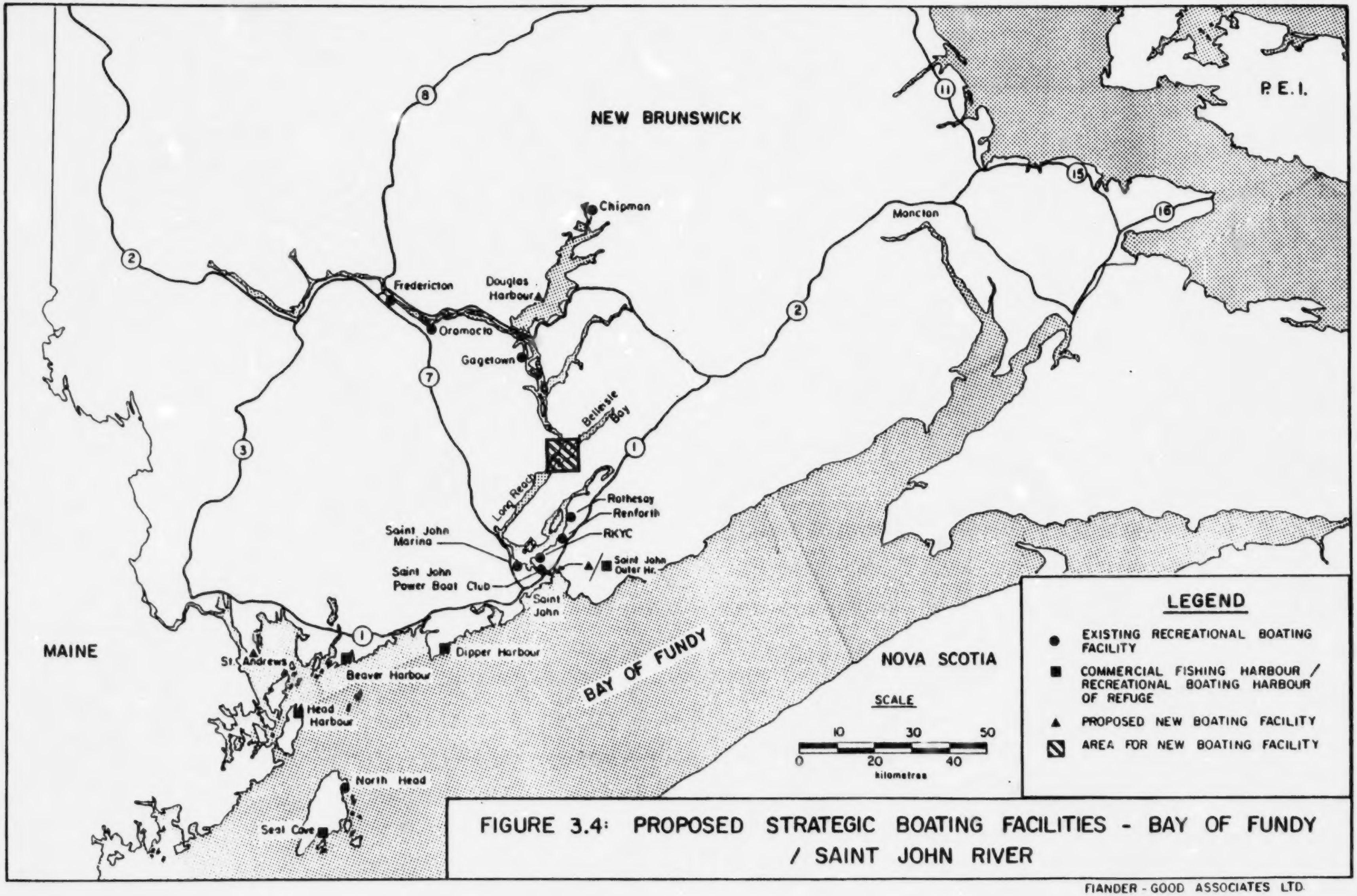

NEW BRUNSWICK
P.E.I.
MAINE
NOVA SCOTIA
BAY OF FUNDY
Chipman
Douglas Harbour
Fredericton
Oromocto
Gagetown
Moncton
Belleisle Bay
Long Reach
Rothesay
Renforth
RKYC
Saint John Marina
Saint John Power Boat Club
Saint John
Saint John Outer Hr.
St. Andrews
Beaver Harbour
Dipper Harbour
Head Harbour
North Head
Seal Cove
2
8
11
15
16
7
3
1
LEGEND
● EXISTING RECREATIONAL BOATING FACILITY
■ COMMERCIAL FISHING HARBOUR / RECREATIONAL BOATING HARBOUR OF REFUGE
▲ PROPOSED NEW BOATING FACILITY
▨ AREA FOR NEW BOATING FACILITY
SCALE
0
10
20
30
40
50
kilometres

FIGURE 3.4: PROPOSED STRATEGIC BOATING FACILITIES - BAY OF FUNDY / SAINT JOHN RIVER

FIANDER - GOOD ASSOCIATES LTD.

A vital element of boating service relates to opportunities to obtain refuge from potentially serious conditions which can arise during periods of bad weather. This is particularly important in the coastal portion of our Study Area. As well, the harbour of refuge concept is also important in some areas of the Saint John River (ie. Grand Lake, Long Reach and Grand Bay areas).

Because of the importance of harbours of refuge to creation of a safe boating environment, this factor has been given special consideration in the development concept for boating facilities. Furthermore, consideration of this factor as a key evaluation criteria has resulted in inclusion of a number of locations which currently do not provide services specifically to recreational boaters.

The facilities proposed for designation as harbours of refuge with respect to recreational boating activities have been included in the overall evaluation of priorities. These facilities are illustrated in Figures 3.3 and 3.4 along with the identification of locations for potential new boating facilities as well as those locations where facility upgrading is required.

Selection of the locations which should be designated as harbours of refuge was based on:

1). attempting to provide boaters with an opportunity for refuge in exposed stretches of water at a spacing of not more than about 30 nautical miles; and

2). evaluation of the general conditions of existing commercial fishing harbour facilities (including docks, berthing opportunities, draft in the harbour, draft in the harbour approaches and characteristics relating to accessibility of the approaches and harbour entrances during storm conditions).

The overall evaluation process also included consideration for development of new facilities in areas where there was an obvious major deficiency. These proposed new marina facilities which are identified on Figures 3.3 and 3.4 are located in:

a). Bouctouche;

b). Douglas Harbour;

c). In the vicinity of the intersection of the Belleisle Bay and Long Reach;

d). Saint John outer harbour (ie. below the Reversing Falls); and

e). St. Andrews.

The above list represents those locations where new facilities designed for recreational boating are considered necessary. The overall assessment of the priorities at these locations as well as all other locations shown in Figures 3.3 and 3.4 is treated in Section 3.6.

A new facility is proposed at Bouctouche because of the need to accommodate an existing local fleet of about 50 boats. The owners of these boats have already indicated their commitment to participate in such a development by means of a deposit to assist development of the facility. They have also made written commitments to make the balance of their contribution prior to initiating construction of such a facility.

Douglas Harbour has been identified for facility development because it is a current homeport for in excess of 30 boats as well as being the prime harbour of refuge on the large body of water in Grand Lake. Furthermore, this harbour is a key base for cruising layovers by both resident and non-resident transient vessels.

A basic deficiency exists in the existing full service marina facilities available in the middle portion of the Saint John River system. Although there are various options to the precise site at which this facility could be developed, the general location for this facility has been identified in this development concept. The logical location for this facility is in the vicinity of the intersection of Long Reach and the Belleisle Bay (Figure 3.4). This facility is proposed because of a number of factors which include:

1). There is currently a lack of recreational boating facilities for a fleet of approximately 40 to 50 vessels which are based in the Belleisle Bay;

2). The distance between the existing recreational boating facilities between Saint John and the Gagetown/Douglas Harbour/Grand Lake area is excessive. The spacing between existing facilities is greater than can be comfortably accommodated in a single day under normal cruising conditions in sailboats.

3). Provision of a facility approximately midway between the existing marinas at Saint John and Gagetown is required to achieve a reasonable spacing between marinas given the extensive cruising activity of the resident and non-resident fleets on the river system. Furthermore, this location represents a reasonable limit for a comfortable day's cruise from either Saint John or Grand Lake/Gagetown.

4). If a facility in this area is located on the south shore of the intersection of Long Reach and Belleisle Bay, it would be easily accessible to the large population base along the Saint John to Sussex corridor. This could result in increased development of the demand because of the proximity and accessibility to this population base. Also, it would allow boaters living along this corridor an opportunity to keep their boats at a safe facility which is in the central portion of the Saint John River system rather than being at one end or the other of this system.

A facility in Saint John Harbour is required for two reasons. One is the need for a designated facility to serve as a harbour of refuge for recreational boats. This is important due to the complete lack of existing opportunities for protection of recreational boats in this harbour which is dedicated exclusively to accommodating commercial vessels. The second reason for this facility is the need for a protected location for recreational boats to lay over while waiting for slack tide to go through the Reversing Falls rapids.

The St. Andrews facility would accommodate a resident fleet of boats currently based at this location. It could also be a base for the resident fleet throughout the entire Passamaquoddy Bay/St. Croix area. As well, this facility would enhance the attraction of non-home-based resident transients from within New Brunswick (i.e. the Saint John River) and non-resident transient traffic to this well established tourism destination area. This town has many historical, cultural, recreational and shopping facilities of interest to transient boaters.

3.6 Identification of Priorities for the Strategic Boating Facilities

Each existing or proposed boating facility was assigned a rating for each of the seven evaluation criteria identified in Table 3.3. The ratings were quantified numerically based on low, medium and high ratings for each of the criterion. In most cases, a low rating for any given criterion was assigned a value of one point. Similarly, a medium rating was assigned two points and a high rating was assigned three points. However, there was one exception to this point assignment because of the unique importance of the criterion. This exception applied to the resident fleet criterion.

Table 3.3

DEFINITIONS OF RATING CRITERIA USED TO FORMULATE THE GENERAL PRIORITIES FOR RECREATIONAL BOATING FACILITIES IN THE PROVINCIAL BOATING DEVELOPMENT CONCEPT

	Rating		
Criterion	Descriptions	Points	Comments
1). Resident Fleet	Low	1	- minimal vessels;
	Medium	2	- less than 40 vessels;
	High	4	- 40 to 70 vessels;
		5	- 60 to 100 vessels;
		6	- more than 100 vessels.
2). Resident Fleet Growth Potential	Low	1	
	Medium	2	
	High	3	
3). Current Transient Activity	Low	1	This criterion includes both resident and non-resident transient activity.
	Medium	2	
	High	3	
4). Potential Future Transient Activity	Low	1	This criterion also includes both resident and non-resident transient activity.
	Medium	2	
	High	3	
	Very High	4	
5). Role as a Harbour of Refuge	Low	1	
	Medium	2	
	High	3	
6). Role in Charter/ Tour Operations	Low	1	- no known potential;
	Medium	2	- claimed potential;
	High	3	- existing operations.
7). Special/Unique Features	Low	1	Examples of special features are noted in the text regarding the resulting priorities of various locations.
	Medium	2	
	High	3	

Because of the major influence of the resident fleet in terms of its overall impact on the economic impacts, the rating points assigned for this criterion were double the values assigned for high, medium and low ratings for the other criteria in Table 3.3. Rating points were assigned on the basis of the resident fleet sizes in accordance with the values identified in Table 3.3. Provision was also made for rating the fleet characteristics in situations where the resident fleet is minimal in size. This is generally the case for harbours of refuge or other locations where the resident fleet is very small.

3.7 Discussion of the Priority Evaluation Results

3.7.1 General Priorities

Table 3.4 provides a summary of the total rating points assigned to the existing and proposed major facilities, as well as the proposed harbours of refuge identified for the provincial conceptual development plan. No recreational boating facilities are proposed in the Bay of Fundy east of Saint John because there is no resident primary fleet in this region and there are no harbours which have adequate water depth at low water to float these craft.

The listing of facility locations in Table 3.4 has been arranged presenting the facility with the highest total rating points first. This is followed by the other facilities in descending order of the magnitude of the total rating points assigned.

Figure 3.5 provides a graphical illustration of the results of the total point assignments summarized in the last column of Table 3.4. The rating assignment illustrated in Figure 3.5 presents a summary of the relative priority for the boating facilities/services at the various locations.

In addition to showing the total points assigned to each of the individual facilities presented in this figure, some potential groupings of

Table 3.4

EVALUATION OF RECREATIONAL BOATING REQUIREMENTS AT VARIOUS LOCATIONS

Facility Group	Facility Location: Code	Facility Location: Description	Rating Points Assigned to Each Evaluation Criterion — Evaluation Criteria: Resident Fleet	Resident Fleet Growth Potential	Current Transient Activity	Potential Future Transient Activity	Role as a Harbour of Refuge	Current Role in Charter/Tour Boat Operations	Special/Unique Features	Total Points
I.	1.	RKYC	6	2	3	4	2	3	2	22
	2.	Saint John Marina	6	3	2	3	2	3	3	22
II.	3.	Shediac Municipal	5	2	1	3	3	2	3	19
	4.	Bas Caraquet	5	1	2	2	3	3	3	19
	5.	Douglas Harbour	2	2	3	4	3	2	2	18
	6.	Gagetown	2	2	3	4	1	3	3	18
	7.	St. Andrews	2	2	2	3	2	3	3	17
	8.	Pointe du Chene	6	1	2	2	3	1	2	17
	9.	Bathurst	4	2	1	2	3	3	2	17
	10.	Belleisle Bay/ Long Reach	2	2	2	3	2	2	3	16
	11.	North Head	1	1	2	3	3	2	3	15
III.	12.	Saint John Outer Harbour	1	1	1	3	3	2	3	14
	13.	Bouctouche	4	1	1	2	2	2	2	14
	14.	Fredericton	2	2	1	2	1	3	3	14
	15.	Rothesay	5	2	1	2	1	1	1	13
	16.	Oromocto	4	1	1	2	1	2	2	13
	17.	Cocagne	4	1	2	1	1	3	1	13
	18.	Richibucto	4	1	1	1	2	3	1	13
	19.	Dalhousie	2	2	1	1	3	2	2	13
	20.	Dipper Harbour	1	1	1	2	3	3	1	12
	21.	Shippagan	2	2	1	2	1	2	2	12
	22.	Douglastown	2	2	1	1	2	1	2	11
	23.	Saint John Power Boat Club	4	1	1	2	1	1	1	11
IV.	24.	Head Harbour	1	1	1	2	3	1	1	10
	25.	Beaver Harbour	1	1	1	2	3	1	1	10
	26.	Cape Pele	1	1	1	1	3	1	2	10
	27.	Seal Cove	1	1	1	1	3	1	1	9
	28.	Renforth	2	2	1	1	1	1	1	9
	29.	Cape Tormentine	1	1	1	1	3	1	1	9
	30.	Pointe Sapin	1	1	1	1	3	1	1	9
	31.	Escuminac	1	1	1	1	3	1	1	9
	32.	McEachern's Point	1	1	1	1	3	1	1	9
	33.	Shippagan Gully	1	1	1	1	3	1	1	9
	34.	Little Shippagan	1	1	1	1	3	1	1	9
	35.	Grande Anse	1	1	1	1	3	1	1	9
	36.	Petit Rocher	1	1	1	1	3	1	1	9
V.	37.	Chipman	1	1	1	1	1	1	1	7

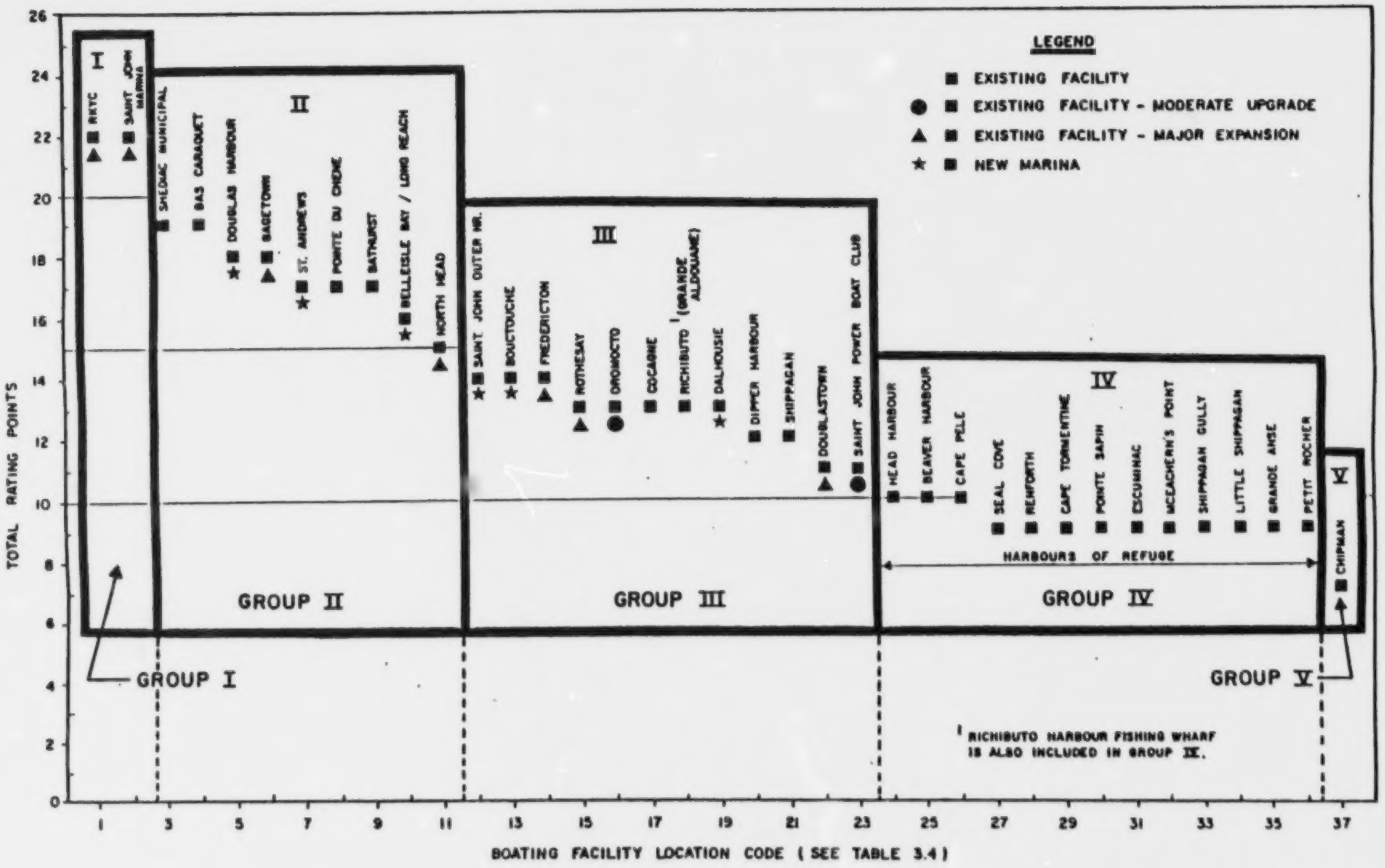


FIGURE 3.5: BOATING FACILITY PRIORITY RATINGS

facilities have been identified. These groupings indicate possible consolidation of facilities into similar priority rankings in terms of the overall importance of these facilities to the recreational boating community. These ratings were based on the requirements for all three components of recreational boating (ie. residents, non-residents, charters and tour operations).

Several of the facilities identified as having a high priority, relative to other locations, already have many of the features and services necessary to accommodate the basic requirements inherent in the ratings identified in Figure 3.5. Therefore, the apparent priorities based on the high magnitude of rating points assigned to the various facilities illustrated in Figure 3.5 does not necessarily imply direct need for improvements at these locations. For example, some of the facilities such as the Shediac Municipal Marina and Bas Caraquet marina have a very high rating illustrated in Figure 3.5. However, although these locations rank higher than others (such as Gagetown or Douglas Harbour), the key facilities and services at these locations already exist.

On the other hand, the facilities with low overall priority totals (Groups IV and V), are essentially harbours of refuge for which only nominal costs are required for implementation.

The following comments provide a general overview of the facilities in each of the five groups noted in Figure 3.5. The total rating points range from a low of 7 for the Chipman facility to a high of 22 points for the Royal Kennebecasis Yacht CLub and the Saint John Marina. At Chipman (Group V) there is very little demand for facilities and services by either the resident or non-resident boaters. There are also no special or unique features at Chipman. On the other hand, at both R.K.Y.C. and the Saint John Marina (Group I), there are large resident fleets with good potential for future growth as well as substantial non-resident activity and specific unique features.

Both facilities in Group I have a current and future role to play regarding resident and non-resident transient activity; both have moderate roles as a harbour of refuge from the relatively large bodies of water in the Long Reach, Grand Bay and Kennebecasis River areas; both have functions in the charter and tour boat operations; and, both have special/unique features.

These facilities at Saint John and Chipman represent the opposite ends of the spectrum of boating facility requirements. Hence, they respectively have the highest and the lowest total priority rating points.

Between the extremes of Group I and V shown in Figure 3.5, there are three other subgroups of boating facilities. Group II includes all of the facilities which achieve a total priority assessment of 15 to 20 rating points. Group III includes those facilities which had a priority assessment between 11 and 14 points; and Group IV includes those facilities with ratings in the 9 and 10 point range.

Chapter 4.0 details the features and services which are necessary to provide a reasonable level of service to the recreational boaters in a manner which is compatible with the boating requirements at the locations identified in Figures 3.3 to 3.5. It is this evaluation of the facility and service requirements at each location which, in conjunction with the priority ratings, form the basis of an implementation plan for the product development component of the boating strategy.

3.7.2 Tourism Related Priorities

To supplement the priority evaluation summarized in Figure 3.5, an additional set of priorities oriented toward tourism aspects of boating were developed. These priorities were based on the following criteria:

a). current transient activity;
b). potential for future transient activity;

c). role in charter/tour boat operations; and

d). special or unique features relating specifically to tourism aspects of recreational boating (including shore-based spin-offs and the relationship to existing tourism destination areas).

The results of this evaluation generated a series of priorities for development which are summarized in Table 3.5. In several cases, within each of the five groups, there is more than one location. In such cases, the location/facilities within any particular group should be considered to be of similar priority. However, if a choice must be made between facilities within any of the five groups noted, this choice should be done on the basis of the order as listed in Table 3.5.

Table 3.5

PRIORITY GROUPINGS BASED ON POTENTIAL TOURISM IMPACTS

Priority Group	Facility/Location
1	Royal Kennebecasis Yacht Club Gagetown (Colpitts Marina) Saint John Marina Douglas Harbour St. Andrews
2	Belleisle Bay North Head Saint John Outer Harbour Fredericton Shediac Municipal Marina Bas Caraquet
3	Bathurst Bouctouche
4	Pointe du Chene Dipper Harbour Oromocto Cocagne Richibucto Shippagan
5	Rothesay Saint John Power Boat Club Douglastown

4.0 PRODUCT DEVELOPMENT

4.1 Introduction

4.1.1 Scope and Sequence of Presentation

This chapter presents the product development component of the provincial boating strategy. It defines the facility/service improvement programs implicit in the overall recreational boating development strategy defined in Chapter 3.0. These programs provide for a system of boating facilities and services to meet the short term needs (up to 5 years) of the primary recreational boat fleet. This chapter includes programs for:

a). the primary boating facilities; and
b). secondary boating items.

Primary Boating Facilities

For the primary facilities, the information presented follows the same sequence as that of the general priorities identified in Figure 3.5. This figure identified five major priority groups of facilities. Only Groups I, II and III have significant requirements in terms of infrastructure improvements to accommodate the recreational boating needs being considered in this study. The program of improvements for each facility/location in these priority groups is addressed in detail in Section 4.2 of this chapter.

With the exception of Renforth, Group IV is composed of facilities which we recommend be designated as harbours of refuge with regard to recreational boating functions during adverse weather conditions. With this exception, the facilities in Group IV currently provide service primarily to commercial fishing vessels. The importance of a clearly identified system of harbours of refuge to the safety of recreational boating has been stressed in Chapter 3.0. This group of facilities is included because of this concern for providing a system of harbours within a 25 to 30 mile spacing which are clearly designated as harbours of refuge. It is important to realize that what is proposed at these locations is simply the designation, by appropriate signing, of an area within the protected harbour which can be used by recreational boats seeking refuge during adverse weather conditions. As well, these facilities should be identified in the "Sailing Directions" published by the Canadian Coast Guard. They should also be identified in any future cruising guide material which is written for recreational boating.

Although this group has a lower overall priority assessment than Groups I to III inclusively, it is strongly recommended that this system of harbours of refuge (Group IV) be designated. The costs of implementing this program of designating harbours of refuge would be nominal (Table 4.4, page 4.68).

Group V is included because it represents an existing facility at Chipman. Since this facility is relatively isolated and exhibits a minor role compared to the others, the existing state of development at Chipman is appropriate given the current level of demand in this area. No major improvements are proposed in the short term at Chipman.

Secondary Boating Items

The secondary items in the development plan are described in Section 4.3. These items include:

a). Maintaining some of the riverboat wharves in the Saint John River;
b). Evaluating the need for a system of primary haulout ramps;
c). Designating moorage in key locations; and
d). Land banking (or other appropriate protective measures) of unique marine recreation areas with high potential.

4.1.2 Primary Components of the Development Plan

In formulating the development program presented in this chapter, emphasis has been placed on identifying the primary physical facilities and services necessary to meet the needs of the primary recreational boating fleet. The main components of the program are:

1). identification of the major infrastructure requirements for existing and proposed recreational boating facilities (based on the assumption that existing clubs and organizations will be making many minor improvements);

2). preliminary schematic plans of the development concept for the major components of the facilities with the highest priorities;

3). identification of the primary additional services to be provided at all facilities in Groups I, II and III (Figure 3.5); and

4). the approximate capital investments required to achieve the major infrastructure components.

4.1.3 Preliminary Nature of Program Details for Primary Facilities

This chapter presents a broad general framework for provision of boating facilities at several locations. It must be emphasized that both the conceptual layout and the cost estimates are only preliminary in nature. For most of the projects in the primary program, additional engineering feasibility will be required prior to completing the final design and cost estimates to a level necessary in order to enable construction of the project.

In nearly all cases, the general development concept at any particular site is based on a number of assumptions regarding both the hydrographic and geotechnical conditions at the sites. No specific engineering related field work was conducted during this study. Limited precise information of use as input to detailed design considerations was available. Similarly, little is known of the technical detail regarding erosion, siltation/sedimentation processes. In some cases, discussions with individuals with local knowledge of sites have provided a preliminary indication of the possible technical characteristics which might exist at the site. This assisted in formulating the assumptions regarding technical characteristics at the sites.

Generally, the preliminary cost estimates (1986) in this document include an allowance for the costs of further feasibility analysis, preliminary engineering and final design. Any exceptions involving sites with major potential problems are specifically noted. In all cases, however, no allowance has been made for construction supervision/inspection.

4.1.4 Commentary on Other Locations in Close Proximity to the Primary Facilities

Several potential locations for boating facilities were given specific consideration during formulation of the overall development plan. Some of these were not included in the final strategy. In light of the overall requirements of the primary recreational boating fleet (both resident and non-resident), the roles of several facilities were considered to be secondary to those which were included in the final list of key facilties identified in Figure 3.5. Where appropriate, specific comments regarding several of the secondary locations are noted in conjunction with the nearest major facility listed in the final development concept as identified in Figures 3.3, 3.4 and 3.5.

4.1.5 Boating Service Guidelines

The network of primary facilities described in Section 4.2 is based on application of a set of guidelines for provision of facilities and services necessary to accommodate the needs of recreational boating activities at all primary locations throughout the Study Area (Figures 3.3 to 3.5). If adequate facilities/services are already available at a key location, no specific comments are made. However, if there is a deficiency at a given location, recommendations for improvements in the various facilities and services are made.

The guidelines used for establishing the proposed facilities and services are illustrated in Table 4.1.

4.2 Details of the Primary Boating Facilities (Groups I, II and III)

The following subsections describe the facilities and services proposed for the locations identified in Figure 3.5. A summary of these primary facility improvements is presented in Table 4.2.

Given the higher overall priorities for the facilities in Groups I and II, these facilities have received the greatest attention with respect to formulating preliminary development plans and preparing initial cost estimates.

4.2.1 Facilities With Group I Priority Ratings

1). Royal Kennebecasis Yacht Club

This long established yacht club has served as one of the province's major centres for recreational boating for decades. The existing facility is close to capacity with regard to the berthing space. The general services available at RKYC include all those necessary for both the homeport fleet and the transient requirements.

The primary facilities available on site include washrooms, showers, ice, telephone and dockside fuel. Other supplies are available within convenient distance based on provision of ground transportation arranged either privately or by means of taxi service.

Table 4.1

GUIDELINES FOR PROVISION OF RECREATIONAL BOATING FACILITIES AND SERVICES

Facility Category	General Location	Desirable Facilities/Services
1. Full Service Marina	Dependent on Local and Transient Demand	Mooring, berthing, fuel, water, ice, washrooms, showers, telephone, general provisions, winter storage, and convenient access to repair services. The following facilities are included in this category: Saint John Marina, RKYC, Pointe du Chene, Shediac Municipal, Bas Caraquet and the Bathurst marina.
2. Intermediate Service Marina	As for Item #1	This varies depending on the location and character of demand but generally includes mooring or berthing, fuel, water, ice, washrooms, showers, telephone and general access to provisions. (For the Saint John River this also includes waste pumpout facilities at Saint John, Gagetown, Douglas Harbour and Oromocto or Fredericton)
3. Harbour of Refuge	In coastal and other exposed waters at intervals preferably less than 30 nautical miles	Designated mooring or berthing opportunities.

Table 4.2

SUMMARY OF IMPROVEMENT PROGRAMS FOR PRIMARY RECREATIONAL BOATING FACILITIES

Facility (Figures 1.3 to 1.5)		Priority Rating	Schematic Development Concept		Estimated 1986 Cost	
No.	Location/Name	Group (Figure 1.5)	(Figure Number)	Program Items	($ x 000's)	Comments
1.	Royal Kennebecasis Yacht Club	I		Increase Wave Protected Berthing Capacity:		
			4.1	1). Option A (Figure 4.1) or	450.0	Option A involves creating a new berthing basin with a capacity = 55 to 60 vessels
			4.2	2). Option B (Figure 4.2)	350.0	Option B extends existing wave protection and berthing for an increased capacity = 55 to 60 vessels.
2.	Saint John Marina	I	4.3	Phase I - Upgrade Breakwater, install berthing floats, showers, washrooms, washer/dryer facilities, wastes pumpout, boaters lounge and upgrade launch ramp.	-	Additional Capacity = 25 boats
			4.4	Phase II - Add to Phase I by adding extra set of floats and rearrange existing outer float layout.	500.0	Overall additional capacity of Phase I and II = 50 boats (This is necessary to meet committed 1986 demand level).
			4.5	Phase III - Add to Phase II by creating inner cove berthing and storage.	400.0	Overall additional capacity of Phases I to III inclusive = 105 boats.
				SUBTOTAL	1 250.0 to 1 350.0	
3.	Shediac Municipal Marina	II		Completion of existing development (washrooms, landscaping and parking at new building and showers and washer/dryer facilities in former clubhouse/lounge building.	75.0	Existing berthing capacity is adequate for short term. Cost estimate excludes further investigation of apparent siltation at basin entrance and approach channel.
4.	Bas Caraquet Marina	II		Conduct sounding survey at entrance to berthing basin.	5.0	Conduct a limited sounding survey at basin entrance to determine the extent of possible siltation problem.
5.	Douglas Harbour	II	4.6 and 4.7	Medium Service Marina	500.0	Berthing capacity = 50 boats. Mooring Capacity = 10 boats. Services include: Fuel, water, power, holding tank wastes pumpout, showers, washers/dryers, ice and general supplies.
				Maquapit Lake Mechanical Sales and Service Centre	75.0	This involves limited floats for access to a potential Maquapit Lake Mechanical Service Centre.
6.	Gagetown (Colpitts Marina)	II	4.8 and 4.9	Phases I & II - Extend existing floats downriver and move them out from shore to allow angle berthing.	130.0	Provide building with washrooms, showers and snackbar. Install waste pumpout facilities, improve parking/landscaping and dinghy storage behind the store and apartment building, rearrange the mooring plan. In aggregate, this will increase berthing capacity by over 30 spaces.
			4.10	Phase III - Develop berthing basin on nearby downriver site.	750.0	This will provide an additional 75 berthing spaces.
7.	St. Andrews	II	4.11 4.12 4.13	Construct new marina (berthing), rearrange mooring plan in harbour area and upgrade clubhouse.	1 100.0 to 1 400.0	New berthing capacity = 30 boats. Install washrooms and showers. Construct fuel depot.
				Install transient moorings and short term floats at Todds Point/ St. Croix.	15.0	Capacity = 8 moorings. Capacity = 4 berths.
				Install transient moorings in Chamcook Harbour.	2.0	Capacity = 6 moorings.
8.	Point du Chene	II		Upgrade float pile retention system. Install limited expansion of floats, limited dredging and expanded clubhouse facilities.	75.0	Clubhouse expansion includes washrooms, showers and washer/dryer facilities.
9.	Bathurst	II		No major improvements required.	0.0	
10.	Belleisle Bay/ Long Reach	II		Construct a new marina.	900.0	Capacity = 40 berths + 30 moorings. Site selection is required (Upgrade access to Piers Marine facility if this site is not selected for marine development).
				Install transient moorings at Evandale.	2.0	Capacity = 6 moorings.
11.	North Head	II	4.14	Extend existing float/mooring system and install washer/dryer and ice facilities.	175.0	Additional capacity = 8/15 berths and 10 moorings (berthing capacity could be increased to 39 by berthing four abreast).
				SUBTOTAL	3 804.0 to 4 104.0	

Table 4.2
(Continued)

SUMMARY OF IMPROVEMENT PROGRAMS FOR PRIMARY RECREATIONAL BOATING FACILITIES

Facility (Figures 3.1 to 3.5) No.	Location/Name	Priority Rating Group (Figure 3.5)	Schematic Development Concept (Figure Number)	Program Items	Estimated 1986 Cost ($ x 000's)	Comments
12.	Saint John Outer Harbour	III	4.15	Construct breakwater, berthing facilities and washroom/showers.	600.0	This would be a facility for shared use with commercial fishing vessels (as per recently completed preliminary engineering study for Public Works Canada).
13.	Bouctouche	III	4.16	Construct a new marina.	750.0 to 975.0	Capacity = 100 boats. It may be possible to reduce the cost by reexamining the breakwater requirements and design details. Costs also depend on size of main building and other shorebased facilities.
14.	Fredericton	III		Upgrade Fredericton Boat Club facilities by expanding berthing floats and mooring system, storage yard (including security) and install gas pump.	200.0	Increased capacity = 18 berths and 15 moorings.
						Also install 6 to 8 moorings east of main channel just downriver from the railway bridge.
				Expand the docking capacity at Regent Street wharf.	75.0	The need for this item will depend on future riverboat activity and the feasibility of periodic opening of the railway bridge swing span.
15.	Rothesay Yacht Club	III		Expand berthing capacity and provide increased wave protection.	240.0	Capacity Increase 20 to 40 berths.
16.	Oromocto Marina	III		Extension of the existing floats downriver to achieve additional berthing. Provide a second access float to the waterfront.	80.0	Medium to long term plans would include an additional set of linear floats parallel to the existing floats but along the north shore of the river.
17.	Cocagne	III		Investigate siltation at entrance to harbour.	10.0	
				Install higher buoyancy floats in area used by tour boat.		
18.	Richibucto	III		Grande Aldouane Inner Harbour wave agitation study.	10.0	Examine the need for additional wave protection at the entrance to the berthing basin.
				Designate the Public Wharf at Richibucto as a "Harbour of Refuge".	-	(Minimal cost is included with Priority Group IV)
19.	Dalhousie	III		Comprehensive coastal Engineering study/design.	1 650.0 to 2 450.0	This study ($150.0) is required due to the complicated design requirements at the highly exposed Inch Arran Park marina relocation site. The estimated net cost of building a marina at this site is in the $1.5 to $2.3 million range.
20.	Dipper Harbour	III		Install 6 transient moorings (for short term use by recreational boats).	2.0	
				Designate as a "Harbour of Refuge".		
21.	Shippagan	III		Provide power and water on the floats and construct a clubhouse with washroom/shower facilities and ice dispensing equipment.	75.0	Most of the basic facilities at this marina have recently been constructed.
22.	Douglastown	III		Complete upgrading initiated last year including enlarging berthing basin.	300.0	If Shipbuilding Museum is built at Chatham, this should include a small dock for access by boat (the cost of this item has not been estimated).
23.	Saint John Power Boat Club	III		Dredge berthing basin.	125.0	
				SUBTOTAL	4 117.0 to 5 142.0	
				OVERALL TOTAL	9 171.0 to 10 596.0	

The general facilities for launching, haulout and storage have recently been improved. Although there are limitations on the capacity for on-site storage, there is additional space on the west side of Milledge Avenue for winter storage of vessels. However, this involves a more complicated procedure regarding haulout and launch because of the necessity to move vessels around with the use of cranes.

Recent discussions with the Vice-Commodore indicates that the future approach taken to winter storage may change depending on the extent to which the existing marine railway service is utilized. It is conceivable that future plans would include the provision of hydraulic trailers capable of lifting boats on cradles (good for vessels up to about 10 tonnes) so that the craft could be stored off-site at other locations, including the boat owner's private property.

Although the winter storage capabilities will require improvements in the medium term, this is not seen as a critical issue in the short term which this study is addressing.

The primary requirements for major facilities in the short term are those associated with increasing the berthing/mooring capacity at this club. There are several possibilities for improvement of wet storage of the primary fleet during the boating season at this site. One option would be to provide additional moorings. However, the general mooring area immediately in front of the clubhouse and breakwater is extensively utilized. Furthermore, this area is unprotected from the prevailing winds during the fall period. To provide additional protection at this location, it would be desirable to enhance the berthing basin.

There are two general options regarding increased berthing capacity at RKYC (see Figures 4.1 and 4.2).

Both of these concepts are based on expanding the berthing capacity within wave protected berthing basins. Option A (Figure 4.1) is based on a

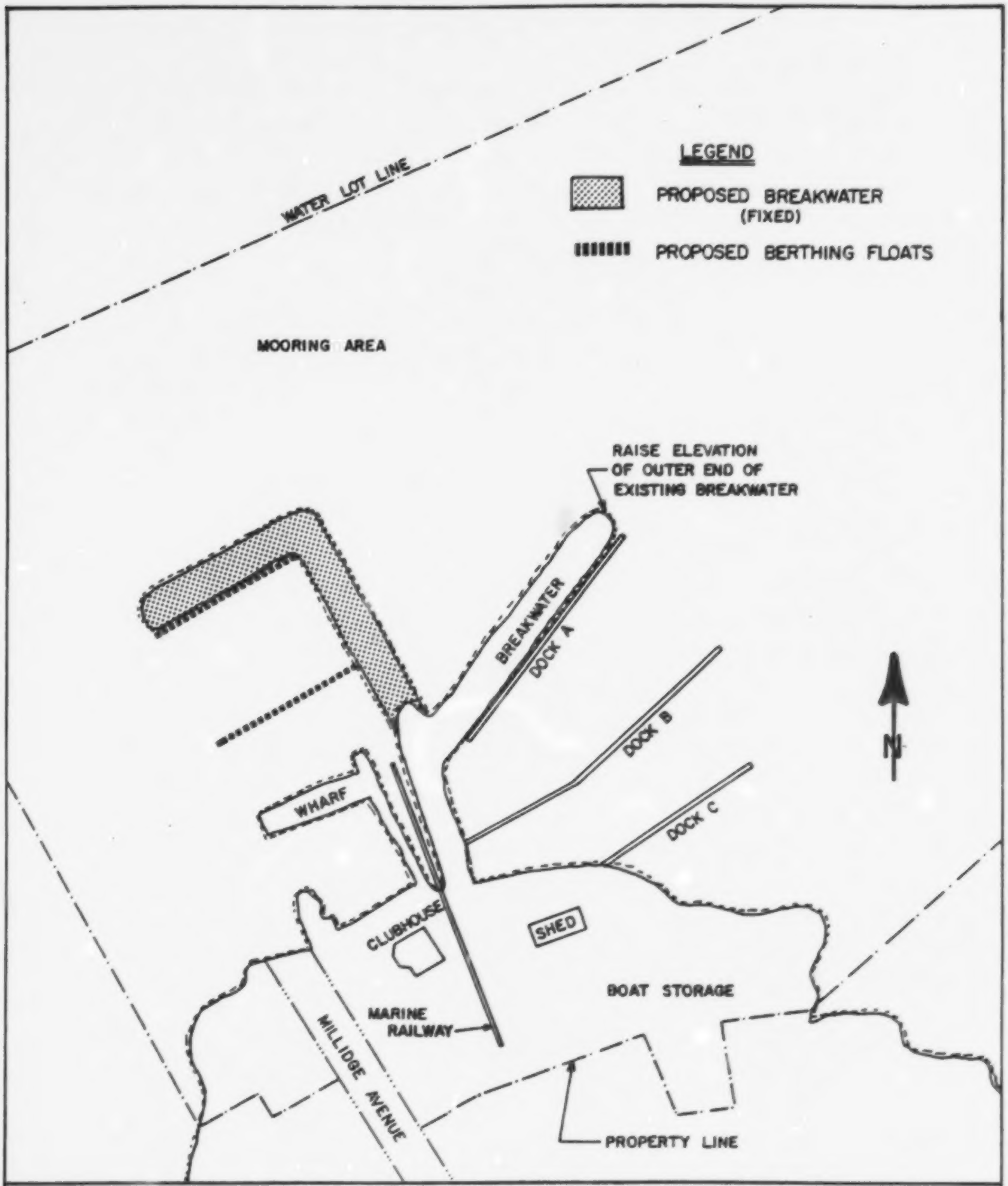

WATER LOT LINE
LEGEND
PROPOSED BREAKWATER (FIXED)
PROPOSED BERTHING FLOATS
MOORING AREA
RAISE ELEVATION OF OUTER END OF EXISTING BREAKWATER
BREAKWATER
DOCK A
DOCK B
DOCK C
N
WHARF
CLUBHOUSE
SHED
BOAT STORAGE
MARINE RAILWAY
MILLIDGE AVENUE
PROPERTY LINE

FIGURE 4.1: SCHEMATIC DEVELOPMENT CONCEPT FOR THE ROYAL KENNEBECASIS YACHT CLUB – OPTION A.

FIANDER - GOOD ASSOCIATES LTD.

development proposal prepared by the executive of the yacht club. This option provides for rearranging the main wharf in front of the clubhouse and extending the breakwater from the inshore leg of the primary existing breakwater. The extension of the breakwater would provide an "L" shaped structure to create an additional berthing basin with a capacity of 55 to 60 vessels.

This facility would be protected from the prevailing adverse northerly winds blowing across the Kennebecasis River from between the Kingston Peninsula and Kennebecasis Island.

This option has the advantage of continuing to concentrate development around the clubhouse. At the same time it provides the opportunity to increase the capacity to the level desired in the short to medium term by providing facilities with a minimum of walking distance to the general parking and assembly area associated with the shoreside facilities at the yacht club.

The other alternative (Option B, Figure 4.2), provides a more economical approach to development of facilities. This alternative is based on extending the existing docks (A, B and C) in a northeasterly direction as well as extending the existing main breakwater. This is critical to provide wave protection from the prevailing northerly winds. Discussions with representatives of the RKYC club executive suggest that the subsurface conditions and the general water depth in this area are such that it is technically possible to extend the docks in the manner illustrated in Figure 4.2. This, however, results in increasing the walking distance along the floats. Although this is not desirable from a functional point of view, it does provide a more cost-effective approach to the expansion of the overall marina berthing capacity when compared to Option A.

Option B would provide additional capacity for approximately 50 vessels. This option would involve provision of an extension to the existing

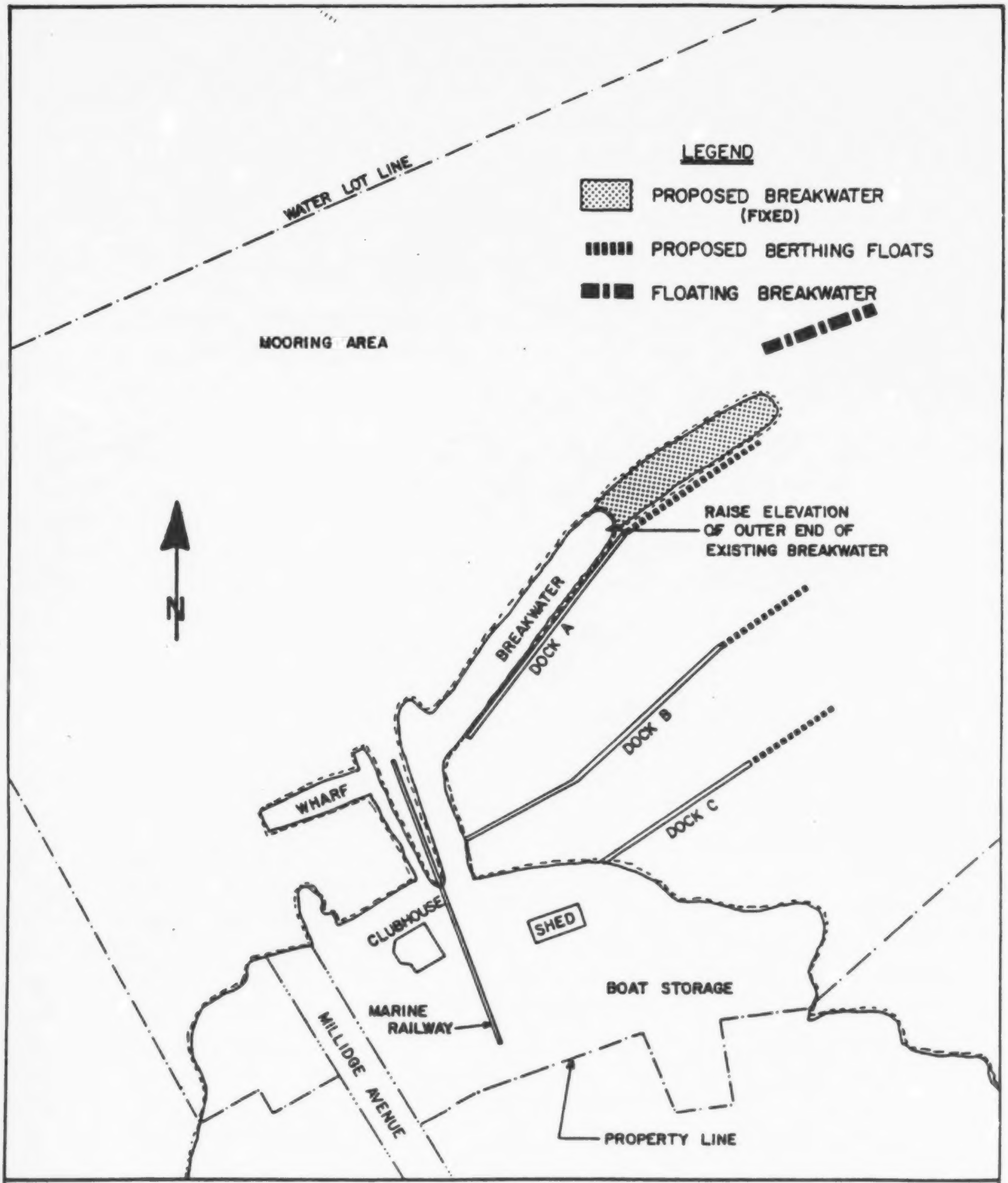

LEGEND
PROPOSED BREAKWATER (FIXED)
PROPOSED BERTHING FLOATS
FLOATING BREAKWATER
WATER LOT LINE
MOORING AREA
N
RAISE ELEVATION OF OUTER END OF EXISTING BREAKWATER
BREAKWATER
DOCK A
DOCK B
DOCK C
WHARF
CLUBHOUSE
SHED
BOAT STORAGE
MARINE RAILWAY
MILLIDGE AVENUE
PROPERTY LINE

FIGURE 4.2: SCHEMATIC DEVELOPMENT CONCEPT FOR THE ROYAL KENNEBECASIS YACHT CLUB – OPTION B.

FIANDER - GOOD ASSOCIATES LTD.

breakwater. It is not known at this stage whether it would be necessary to use a rubble mound breakwater facility. It is possible that floating wave protection may be adequate to provide the wave protection necessary for the entire extension of the breakwater. However, this would require further detailed engineering evaluation of the wind and potential wave climate from the various exposed directions. It is however, probable that at least the outer portion of the wave protection facility could be of a floating timber structure similar to that commonly used by the Small Craft Harbours Branch of Fisheries and Oceans in Nova Scotia.

The preliminary cost estimates for Option B have been based on the assumption that the initial 300 feet of the extension to the existing breakwater would be a typical rubble mound breakwater facility. An additional 120 foot section of floating timber wave protection is suggested as an extension to the fixed breakwater. This facility would be offset from the main breakwater to allow vessels to enter the basin without going into the shallower water which exists in the eastern portion of Brothers Cove. These primary protection structures would allow extensions to the existing three docks A, B and C. The approximate extension of Dock A would be 250 feet, Dock B would be 175 feet and Dock C would be 150 feet.

Another feature to be addressed in further analysis regarding Option B, is that associated with rearranging the layout of the existing facilities at Docks B and C. This examination should include the potential for realigning Docks B and C to arrange these facilities such that the overall capacity of the berthing basin is maximized. The existing spacing between Dock A and B is more excessive than necessary. With the overall review of expansion of this facility, it may also be possible to realign these docks in such a manner to create more effective use of the berthing area between the breakwater facility and the shoreline. In fact, it may be possible to accommodate an additional set of floats along the inshore area of the cove with such a rearrangement.

The preliminary estimate of costs for the two options are:

1). Cost of Option A = $450 000.

2). Cost of Option B = $350 000.

These options both assume utilization of a float anchorage and pile berthing system similar to the existing facilities provided at Docks A, B and C. This approach, although it has some inherent operational disadvantages from a vessel maneuvering perspective, results in the most efficient utilization of linear float space for berthing purposes. Since this system is currently utilized, the boaters are familiar with this type of layout. Therefore, it is recommended that the expanded berthing facilities utilize this same type of design for the berth layout.

There is a possible alternative to the wave protection provided by the floating timber structure at the end of the proposed extension to the existing fixed breakwater. This alternative would involve a wave protection structure off of the point at Tucker Park on the north side of Brothers Cove immediately north of the berthing/mooring area. However, it is probable that greater protection can be provided by the floating extension of the fixed structure because of its proximity to the area to be protected. The potential for improvement by a structure at Tucker Point is affected by the extent to which waves generated by northerly winds would defract around the end of such a structure. This could still cause a negative impact at the outer end of the berthing basin. It is recommended that the wave protection be concentrated as close as possible to the berthing basin as suggested by the schematic arrangement outlined in Figure 4.2.

More detailed feasibility work to be conducted subsequent to this study should explore the extent to which Option A could be developed utilized floating wave protection for the entire portion of the breakwater structure. If this is found to be technically feasible, it would substantially reduce the cost associated with developing Option A. At the same time, the berthing capacity would be substantially enhanced by the ability to have short term berthing on the offshore side of the breakwater (in calm conditions).

A final decision on which of the two options and the precise engineering details of the type and nature of design for each of these potential options should be established as part of a proper engineering feasibility study. Such a subseqent study would also provide a detailed and more accurate estimate of the costs for Options A and B.

Interest in developing a new marina facility in Den Boom Cove has also been expressed by a private individual. This area is immediately west of RKYC. However, given the marginal financial viability of marinas, the costs to develop a totally new facility make such a venture highly impractical compared to that of expanding the existing facilities in the Kennebecasis/Grand Bay area. Therefore, no further consideration was given to the prospects of a totally new facility at Den Boom Cove.

2). Saint John Marina

This facility is unique in that it is the only marina in the province which provides a full range of repair services (mechanical, hull and electrical). It also provides most other general marina services.

The marina facilities are a component of an existing land-based business. This land-based facility includes a restaurant/lounge which has recently been substantially expanded and upgraded. The operator also provides a tour boat service for river cruises. In the past, other private charter activities have based their service out of this marina. An additional component of the service provided at this facility is the boat lift/launch capabilities which includes either onsite storage or transportation over the road on a hydraulic trailer capable of accommodating boats up to 10 tonnes. This service has been extensively utilized during the past season.

The total demand at this location is comprised of local boat owners, as well as resident and non-resident transient vessel owners. This facility, as well as the Royal Kennebecasis Yacht Club, are both in ideal locations to serve as the "above the Reversing Falls" entry/gateway for the Saint John River system. At the same time, these locations have the facilities and services necessary to make them the preferred location for layovers while awaiting slack tide to exit the river through the Reversing Falls rapids.

The marina owner has already recently provided a number of enhancements to the marina. These include additional berthage, improvements to the inshore portion of the breakwater, construction of retaining walls on both sides of the main wharf, construction of retaining structures around the club building, general site landscaping in the immediate vicinity of the clubhouse, dredging of areas adjacent to the clubhouse and installation of new fuel pump facilities. Recent developments have also included expansion of the clubhouse building to include a veranda, patio/lounge area at the second floor level.

Although many of the services have been upgraded over the past few years, there are a number of major improvements which are required to enhance the service provided at this key recreational boating facility at the lower end of the Saint John River. The primary elements to be addressed in terms of major capital improvements are:

1). expansion of the breakwater to protect the berthing basin from the northeasterly winds which create the greatest problem;

2). expansion of the berthing capacity by providing additional floats;

3). provision of additional floats adjacent to the retaining structure by the clubhouse and fuel pump area;

4). provision of a wastes pumpout facility, washrooms, showers and washer/dryer service in the main clubhouse building;

5). Completion of general landscaping and site improvement and completing the boaters lounge at the ground floor level of the clubhouse below the existing patio/veranda structure which was completed last year;

6). upgrading of the existing haulout ramp for medium and small sized vessels; and

7). creation of a retaining dyke along the inshore end of the berthing basin in a manner which creates a line parallel to the inner cove shore line. This should include infilling an area between the dyke and the existing shore which could be used for parking. The dyke could provide the basis for creating an additional set of floats for berths along the inner shore of the berthing basin. This area could also incorporate a launch ramp for small craft and storage for vehicles and trailers.

The proposed general development concept for the Saint John Marina is based on the following possible 3 phased expansion:

Phase I - Upgrade breakwater and provide additional floats, install showers, washrooms, lounge and upgrade existing launch ramp (Figure 4.3).

Phase II - Provide an additional set of floats and rearrange existing floats to optimize berthing capacity (Figure 4.4).

Phase III - Create inner cove berthing and storage/parking area (Figure 4.5).

Phases II and III are expansions of the Phase I concept.

Phase I

The most essential requirement for expansion of this facility is that associated with the improvements to the breakwater. These improvements are necessary to create a protected harbour to allow safe berthing throughout the boating season. The critical wind at this location is the northeast wind out of the Kennebecasis River. Without provision for a breakwater expansion, further marina development would not be practical because of the exposure to the relatively long fetch along the Kennebecasis River. Given the extent of wind exposure at this site, the breakwater structure will probably have to be an extension and upgrading of the existing fixed structure.

Extension of the breakwater out to the outer end of the old vessel which has been scuttled to provide a form of wave protection is of primary importance. In conjunction with the extension and raising of much of the existing breakwater as noted on Figure 4.3, additional berthing capacity should be provided by placing a set of floats with mooring piles along the inshore face of the breakwater. This would require removal of three existing wooden barges which are submerged in this area and removing the remains of a steel barge on the outer face of the existing breakwater. These changes would increase the capacity by about 25 boats. This phase would also include new floats along the edge of the structures by the marina building and fuel dock area. These floats are required for the fuel dock and for short term access to the facilities/services in the marina building.

The landscaping and general site upgrading which is currently underway, should be completed in Phase I. As well, waste pumpout facilities should be installed and additional clubhouse facilities provided. The main components of the clubhouse expansion required from a general recreational boating perspective are provision of showers, washrooms and washer/dryer facilities for use by boaters. The lower level of the clubhouse (on the ground floor below the recently constructed patio/veranda deck extending from the upstairs lounge) should also be enclosed to serve as a boater's lounge facility.

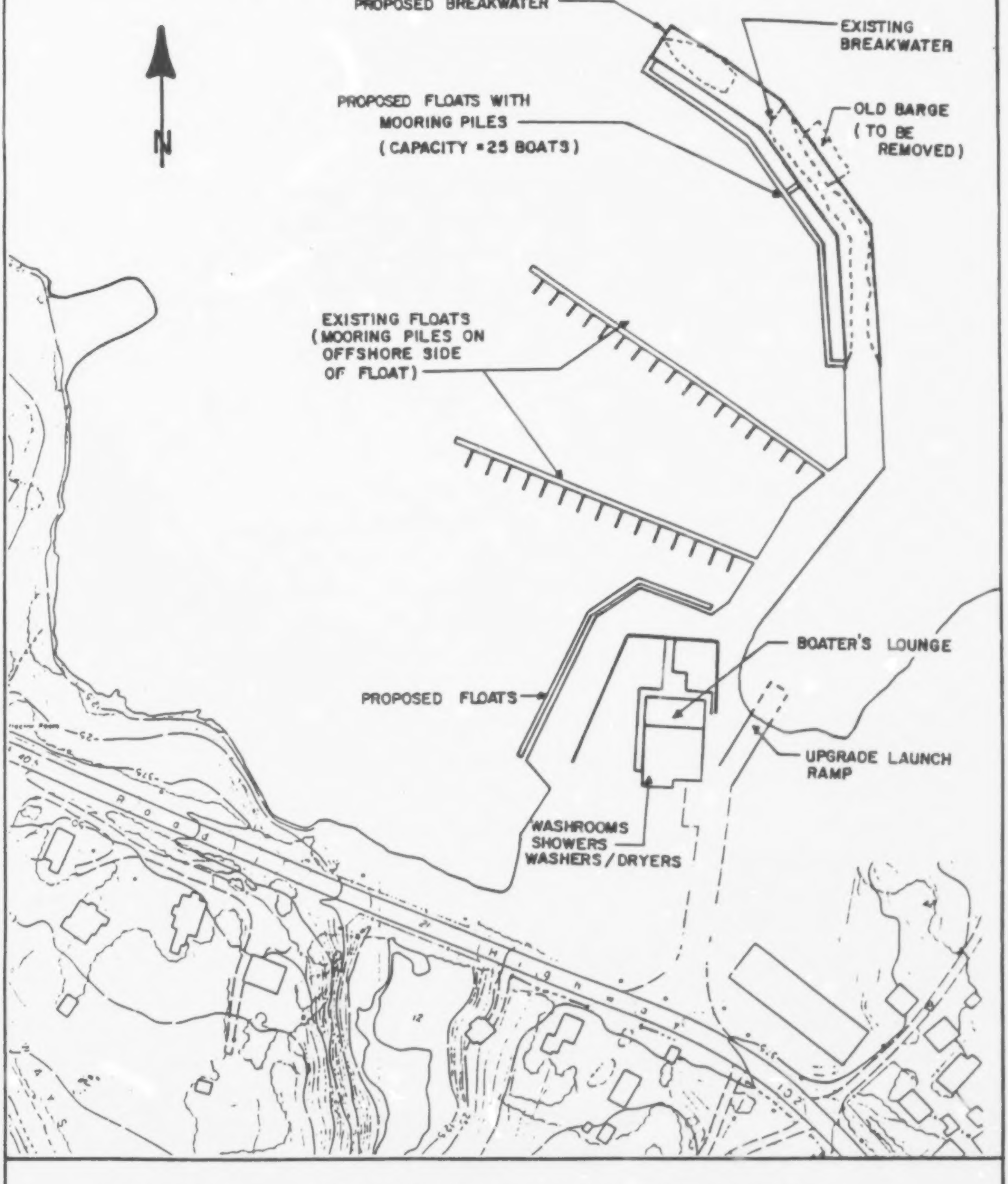

PROPOSED BREAKWATER
EXISTING BREAKWATER
PROPOSED FLOATS WITH MOORING PILES (CAPACITY =25 BOATS)
N
OLD BARGE (TO BE REMOVED)
EXISTING FLOATS (MOORING PILES ON OFFSHORE SIDE OF FLOAT)
BOATER'S LOUNGE
PROPOSED FLOATS
UPGRADE LAUNCH RAMP
WASHROOMS
SHOWERS
WASHERS/DRYERS

FIGURE 4.3: SCHEMATIC DEVELOPMENT CONCEPT - SAINT JOHN MARINA - PHASE I

FIANDER - GOOD ASSOCIATES LTD.

Phase II

The second phase of development would include an additional set of berthing floats with mooring piles (Figure 4.4). This set of floats would extend from the inshore end of the Phase I floats proposed for the inside face of the breakwater. This would also necessitate relocating the existing outer set of floats. Although the new float would interfere somewhat with the berthing capacity at the inshore end of the Phase I development, there would be a net overall increase of about 50 boats for Phase I and Phase II.

Phase III

The main component of Phase III (Figure 4.5) is that relating to provision of berthing and parking/boat storage along the inner southwest portion of the cove forming the berthing basin. This would involve construction of a retention dyke generally parallel to the existing shoreline in the southwestern portion of the cove. This construction would include infilling behind the general retention structure. The area created by this infilling could be used as vehicile and trailer parking. As well, smaller boats could be accommodated by providing a launching ramp with appropriate storage for boat trailers as well as cars.

This construction would have to include provision for the continuation of the drainage system associated with the culvert/bridge under the highway at the head of the cove. It is anticipated that much of the material required for infill behind the retention dyke could be dredged from the berthing basin in the vicinity of this structure.

It is evident that the capacity of this facility could be increased by an additional 55 vessels by providing the Phase III berthage along the inner face of the breakwater.

In the medium term, the overall berthing capacity could also be further increased by extending the three main sets of floats (Phase II) from the

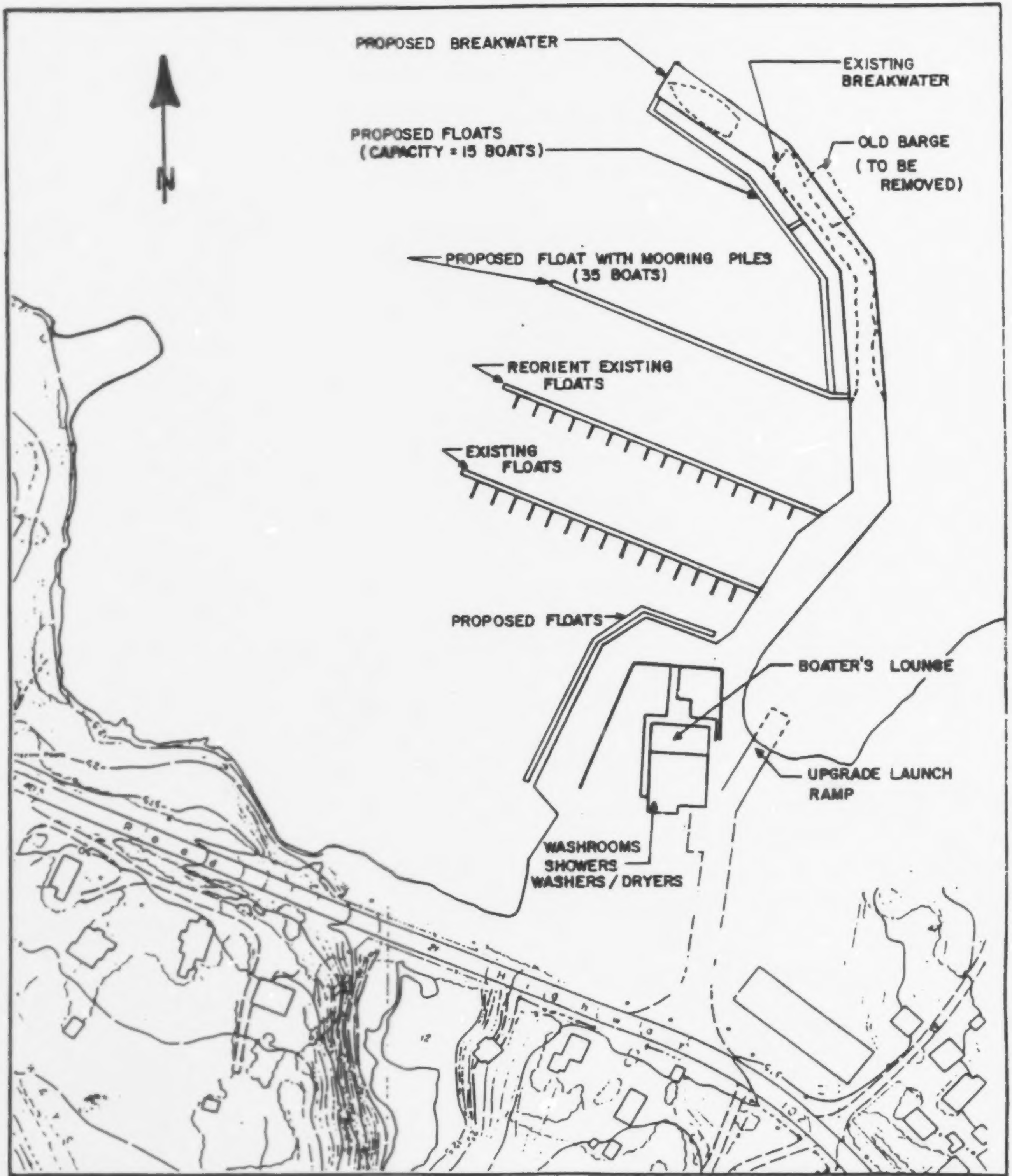

N
PROPOSED BREAKWATER
EXISTING BREAKWATER
PROPOSED FLOATS (CAPACITY = 15 BOATS)
OLD BARGE (TO BE REMOVED)
PROPOSED FLOAT WITH MOORING PILES (35 BOATS)
REORIENT EXISTING FLOATS
EXISTING FLOATS
PROPOSED FLOATS
BOATER'S LOUNGE
UPGRADE LAUNCH RAMP
WASHROOMS
SHOWERS
WASHERS / DRYERS
Highway

FIGURE 4.4: SCHEMATIC DEVELOPMENT CONCEPT - SAINT JOHN MARINA - PHASE II

FIANDER - GOOD ASSOCIATES LTD.

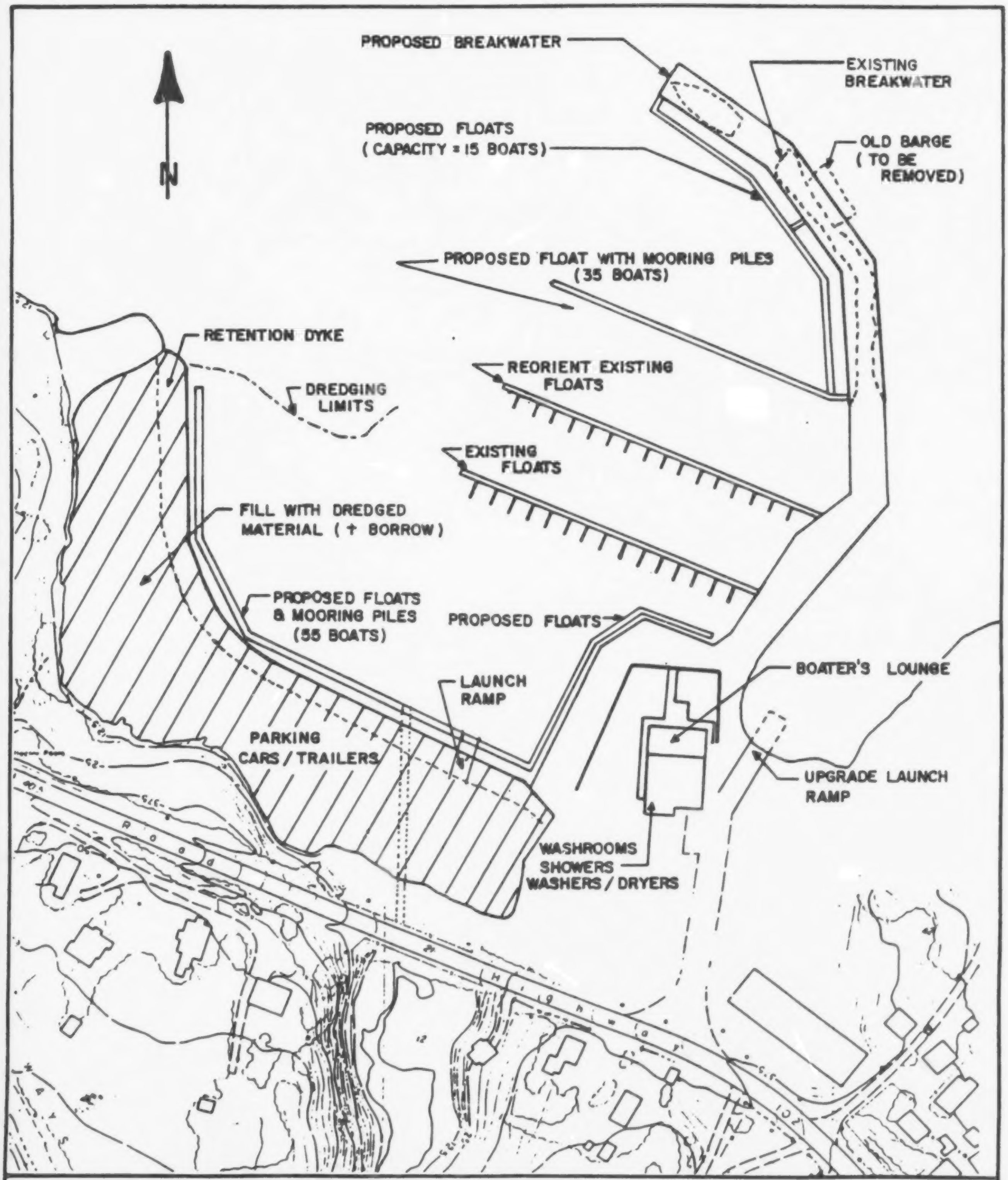

N
PROPOSED BREAKWATER
EXISTING BREAKWATER
PROPOSED FLOATS (CAPACITY = 15 BOATS)
OLD BARGE (TO BE REMOVED)
PROPOSED FLOAT WITH MOORING PILES (35 BOATS)
RETENTION DYKE
REORIENT EXISTING FLOATS
DREDGING LIMITS
EXISTING FLOATS
FILL WITH DREDGED MATERIAL (+ BORROW)
PROPOSED FLOATS & MOORING PILES (55 BOATS)
PROPOSED FLOATS
BOATER'S LOUNGE
LAUNCH RAMP
PARKING CARS / TRAILERS
UPGRADE LAUNCH RAMP
WASHROOMS SHOWERS WASHERS / DRYERS
Road
Highway

FIGURE 4.5: SCHEMATIC DEVELOPMENT CONCEPT - SAINT JOHN MARINA - PHASE III

FIANDER - GOOD ASSOCIATES LTD.

breakwater in a northwesterly direction. This could be done relatively economically by simply providing the additional floats and pile anchor structures necessary to achieve these expansions. This would also however, have to include removal of a small existing rock pile in the basin near the end of the existing inshore set of floats. The additional berthing capacity to be generated from this future phase has not been estimated (this medium term expansion should include consideration of possible requirements for expansion of wave protection facilities).

The proposed 3 phase expansion of work already initiated by this entrepreneur would create a significant enhancement of the recreational boating facilities in the lower Saint John River area. In particular, this facility is the only one on the west side of the river system. As such, it is in a strategic location to serve a large portion of the population base in the greater Saint John area. This facility is also an important component of the overall development concept because of the increased demand already being exhibited at this site by boaters.

The preliminary cost estimates of the major components of this development are as follows:

1). Phases I & II = $500 000.

2). Phase III = $400 000.

Based on existing demand, Phases I and II are required immediately. The Phase I berthing capacity increase would not be sufficient to accommodate the demand which already exists for the 1986 season. Furthermore, it is highly probable that Phase III will be required well within the 5 year horizon of this study. Medium term demand may well require extension of the 3 main berthing floats shown in Figures 4.4 and 4.5.

4.2.2 Facilities With Group II Priority Ratings

3). Shediac Municipal Marina

The priority rating for this facility is one of the highest in Group II. However, the basic requirements for the primary recreational boating fleet have, for the most part, been provided as a result of the recent and current expansions of the marina facilities at this location.

Information provided during this project indicated that this marina facility has a current capacity of about 120 vessels given the present float configuration. During the past season about 75 berths were leased. This provides a current surplus capacity of about 45 vessels. This should probably accommodate the nominal growth in the primary fleet for the short term. At the same time, the capacity of the dredged, wave protected berthing basin is capable of accommodating floats for up to about 200 vessels. Conseqently, as demand increases in the medium to long term, the facility can be expanded by providing additional floats/finger piers and associated mooring piles.

The existing marina developments at this site are part of an overall water oriented recreation complex including beach developments, daysailing and sailboards. The main components of this development which are specifically marina related have been completed.

The primary additional elements to be integrated into the marina component of this complex are:

1). completion of the landscaping and parking associated with the new marina clubhouse building immediately adjacent to the berthing basin;

2). provision of additional washroom facilities in the small clubhouse building by the berthing basin; and

3). provision of showers and washer/dryer facilities in the main clubhouse/lounge building.

The estimated cost of these improvements is about $75 000.

It is also possible that dredging may be required at the entrance to the marina basin. Some reports from local boaters indicate there has been infilling since construction of this facility. Further study is required to determine if this dredging is required. No allowance has been made for this study or the possible subsequent dredging costs.

Additional plans by the Lobster Festival Corporation for completion of this recreation complex include a number of factors which are not directly related to the activities associated with the primary fleet of recreational boats.

4). Bas Caraquet Marina

The Bas Caraquet marina is relatively new and provides a high level of service to the recreational boaters in this area. The general degree of satisfaction by the members of this facility was the highest of all existing facilities in the province.

The growth in demand at this location is not expected to be such that berthing capacity in excess of what can be accommodated within the existing berthing basin will exist during the short term.

Input received from the boaters in this area suggests the possibility of siltation occurring at the entrance to the berthing basin. This apparent condition should be examined by conducting a sounding survey during the coming season to establish the extent to which siltation has occurred. This survey should determine what, if any, course of action may be required to alleviate this potential siltation process.

5). Douglas Harbour

Douglas Harbour (Figure 3.4), is recommended as a site for a new marina facility. This harbour has already evolved as a centre for recreational boating activities on Grand Lake. This results partially because of its natural features which provide protection from the large, and at times rough, body of water in the main portion of Grand Lake. Of equal importance is its close proximity to the excellent sailing conditions on Grand Lake.

Marina development opportunities in Douglas Harbour are also enhanced by the existence of a business enterprise whose owner is interested in expanding to accommodate recreational boating requirements. This entrepreneur has recently acquired land which provides access to the waterfront in the small cove northeast of the existing public wharf in Douglas Harbour. He has also developed a convenience store on this property.

The proposed development of Douglas Harbour is based on the concept of providing a limited service marina which would accommodate the home based and transient (resident and non-resident) activities in this attractive portion of the Saint John River system.

Specific components of the marina development at Douglas Harbour are illustrated in the schematic layout shown in Figures 4.6 and 4.7. Figure 4.6 provides a general overview of Douglas Harbour indicating the location of the existing public wharf and Earles Cove which has developed as a mooring/anchorage basin by local boaters. This figure also illustrates an obvious opportunity for medium to long term expansion of the mooring and anchorage basins by dredging a cut through the sand bar to the cove at the west of the harbour entrance.

Figure 4.6 indicates the location of the proposed development associated with the existing private business (Hunter's One Stop Convenience Store). This area is proposed as a base for development of a facility with

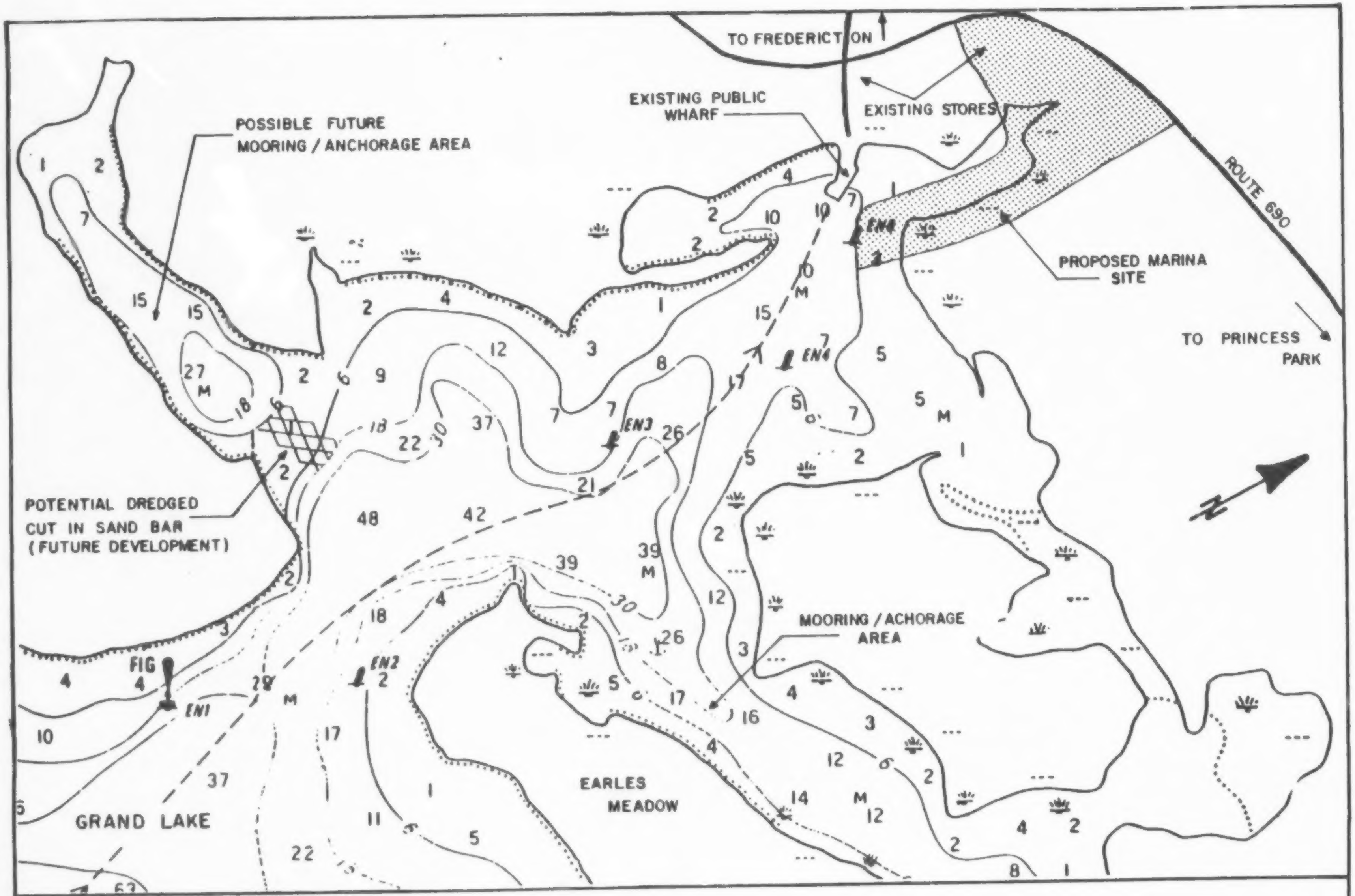

TO FREDERICTON
EXISTING PUBLIC WHARF
EXISTING STORES
ROUTE 690
PROPOSED MARINA SITE
TO PRINCESS PARK
POSSIBLE FUTURE MOORING / ANCHORAGE AREA
POTENTIAL DREDGED CUT IN SAND BAR (FUTURE DEVELOPMENT)
MOORING / ACHORAGE AREA
EARLES MEADOW
GRAND LAKE
FIG 4
EN1
EN2
EN3
EN4
N

FIGURE 4.6: GENERAL DEVELOPMENT PLAN – DOUGLAS HARBOUR

FIANDER - GOOD ASSOCIATES LTD.

moderate berthing capacity. This location would provide direct access to the convenience store which currently has washrooms, washers/dryers and a full range of general provisions including ice and fuel.

The main new components of this proposed marina development (Figure 4.7) would include:

1). provision of showers (in the convenience store);

2). provision of access (by water and land) to a new berthing basin in the cove behind the convenience store;

3). dredging of the cove to connect with the main harbour at a point just east of the existing public wharf;

4). provision of fuel pumps and a wastes pump out station adjacent to the dredged berthing basin;

5). development of berthing facilities (with power) in the dredged basin and moorings in Earles Cove; and

6). development of a parking/boat storage area at the head of the cove.

This proposal would provide a berthing capacity of 50 to 60 boats. Generally, short term uses would have priority at the inshore end of the berthing float.

The berthing basin would involve a single linear set of floats with berthing on either side of this float. The proposed system would have a mooring stake vessel tying arrangement similar to that used by RKYC. This berthing arrangement allows accommodation for a maximum number of berthing spaces within the restricted area available. This concept allows substantially higher berthing capacity than can be achieved with finger piers.

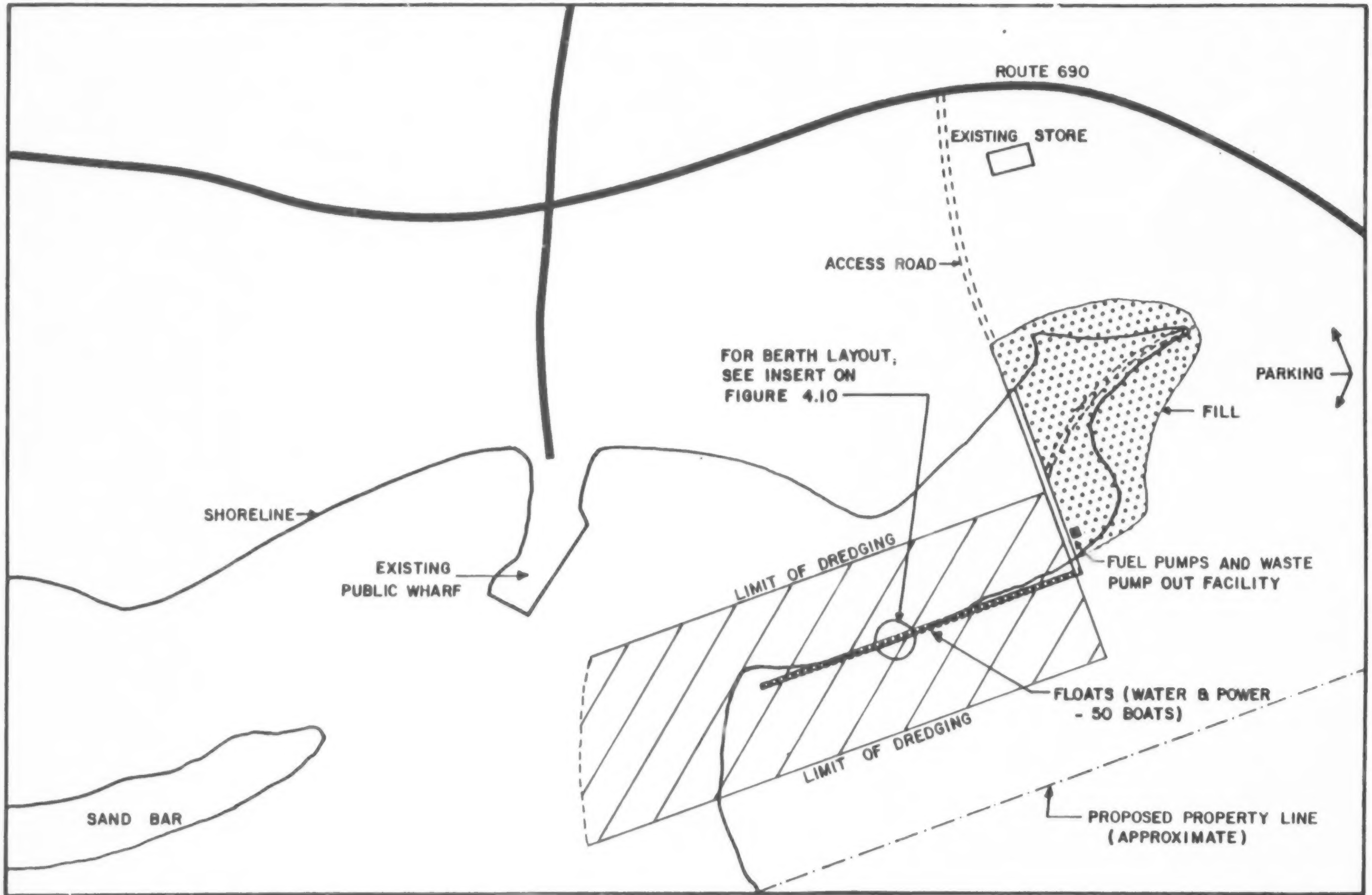

ROUTE 690
EXISTING STORE
ACCESS ROAD
FOR BERTH LAYOUT, SEE INSERT ON FIGURE 4.10
PARKING
FILL
SHORELINE
EXISTING PUBLIC WHARF
LIMIT OF DREDGING
FUEL PUMPS AND WASTE PUMP OUT FACILITY
FLOATS (WATER & POWER - 50 BOATS)
LIMIT OF DREDGING
SAND BAR
PROPOSED PROPERTY LINE (APPROXIMATE)

FIGURE 4.7: PROPOSED DEVELOPMENT CONCEPT – DOUGLAS HARBOUR

FIANDER - GOOD ASSOCIATES LTD

Parking and potential dry boat storage could be provided at the inshore end of the berthing area. It is assumed that the material to be retreived from the dredged berthing basin may be utilized for fill at the inshore end and on the adjacent low lying shorefront lands.

It is important to realize that the outfall from the creek which runs into the cove will have to be accommodated. Preliminary review of the catchment area for this creek indicates that this is probably feasible. Detailed feasibility study and design of this marina facility will confirm this approach or identify alternatives, as may be the case.

In conjunction with the primary berthing facilities it is proposed that a number of moorings be placed on a systematic pattern in the anchorage at Earles Cove. This will substantially increase the capacity for resident and transient vessels in this area. This capacity can be provided at nominal cost.

The feasibility study and detailed design for this project should include examination of the prospects for siltation which might arise in the dredged berthing basin. Initial review suggests this is not likely to be a problem.

The preliminary estimate of costs to develop this facility and its associated services is $500 000.

In addition to the improvements which are proposed for Douglas Harbour, it has also recently become apparent that a different entrepreneur is interested in developing a full service marina in this general area of the Saint John River system. Current indications are that this service center may be developed on Maquapit Lake. However, due to the relative isolation of this site and an extra three hours lost sailing time per day we recommend Douglas Harbour be the site for the primary marina facility and Maquapit Lake be developed as a sales and repair centre.

Development of a marine sales and repair facility on Maquapit Lake is highly desirable. In particular, the service component is an important feature which is currently missing (but needed) in the entire central portion of the Saint John River system. The Maquapit Lake service facility should be encouraged and its development should include provision of sufficient floats to provide convenient access from the water for sail as well as power boats. A nominal estimate of $75 000 has been allocated for water/land access facilities for this service centre.

6). Gagetown

During the past few years, the Colpitts Marina at Gagetown has expanded rapidly. This facility is a strategic component of the overall development concept for the primary fleet because of a number of factors. These factors include its location near the juncture of the Saint John River system and the Jemseg River leading to Grand/Maquapit Lakes. It is also on the main water route of the upper portion of the Saint John River leading to Oromocto/Fredericton. Other factors affecting development of this facility relate to the level of effort the operator makes toward serving recreational boaters.

The increased boating activity associated with this marina development has also enhanced activity at other tourist related businesses including the craft shops and the nearby country inn (the Steamer's Stop Inn). This inn has a small floating dock and several moorings to accommodate dining and overnight stays derived from the river system.

The existing marina development is associated with the general store located in the center of the village about 80 metres downstream from the Public Wharf (Figure 4.8). Given its general location, the established boating patterns and the previous commitments to service by the marina operator; this facility is expected to experience a substantial increase in demand in the short term. This demand will be for both home-port and transient functions.

The improvement program for this facility is presented in the following three phases:

Phase I - extend existing floats downriver;

Phase II - move existing and extended floats offshore from the existing location about 12 metres and provide angle berthing; and

Phase III - develop berthing basin on marina owner's vacant shore lot located just downriver from the existing marina.

The first and second phases of this development (Figures 4.8 and 4.9) involve upgrading the existing facility. The third phase, involving more comprehensive development of a marina berthing basin (Figure 4.10), could be implemented as a second component of this overall short term development.

Phase I

Figure 4.8 illustrates the key components of Phase I of this development proposal for the current marina site. These include:

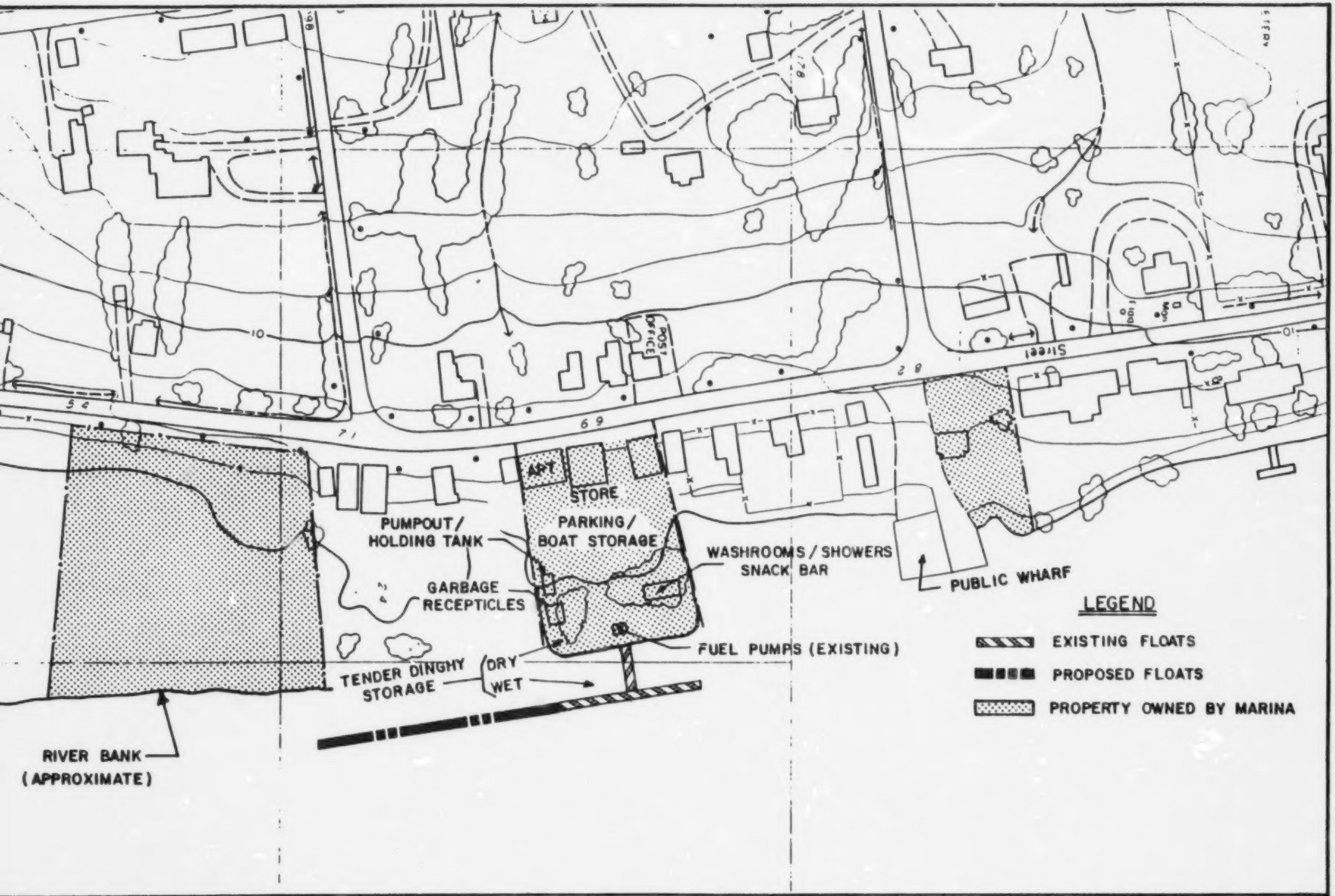
1). provision of additional floating docks parallel to the river bank downriver from the existing floats;

2). provision of increased parking area on the property behind the apartment building owned by the marina;

3). provision of a small building housing washrooms, showers and a snack bar;

4). provision of a garbage receptacle area and pumpout facilty for wastes from vessel holding tanks; and

5). rearrangement of existing moorings and installing additional moorings as space permits.



Street
POST OFFICE
APT
STORE
PARKING/
BOAT STORAGE
PUMPOUT/
HOLDING TANK
GARBAGE
RECEPTICLES
WASHROOMS / SHOWERS
SNACK BAR
FUEL PUMPS (EXISTING)
PUBLIC WHARF
TENDER DINGHY
STORAGE
DRY
WET
RIVER BANK
(APPROXIMATE)
LEGEND
EXISTING FLOATS
PROPOSED FLOATS
PROPERTY OWNED BY MARINA

FIGURE 4.8: SCHEMATIC DEVELOPMENT CONCEPT - GAGETOWN (PHASE I)

FIANDER - GOOD ASSOCIATES LTD.

This phase of the development plan would include provision for additional moorings located downriver along the southwest shore of the facility. All existing moorings should also be relocated to maximize the number of moorings to be accommodated in the space available. This should include specific consideration of allocating moorings on the basis of vessel size (ie. all vessels less than 26 feet in a certain area and all vessels over 35 feet in a different area, etc.). Phase I would also provide additional storage area for tender dinghies along portions of the inshore face of the new and existing floats as well as dry storage along the shoreline of the property behind the apartment and store buildings.

Phase II

Phase II (ie. moving Phase I floats out from the river bank and providing angle berthing as per Figure 4.9) would increase the capacity of essentially the same facilities from 18 (Phase I) to 30 vessels.*

Recent discussions with the operator of this facility indicates that the number of additional bookings for vessels during the forthcoming year is already slightly in excess of the additional capacity which would be generated from the berthing expansion programs included in the Phase I proposal. Given this fact, the past rate of growth of this site, and future growth potential; the Phase II expansion possibilities are justified immediately. At the same time, to accommodate short term growth, it is necessary to initiate immediate planning for Phase III.

Phase III

Phase III of the development at Colpitts Marina in Gagetown will require a study to confirm the feasibility and prepare final design details for the preliminary development concept proposed in Figure 4.10. By way of highlighting the Phase III proposal, it should be noted that the primary components of this phase of development would provide a major expansion in the berthing capacity by creating a berthing basin in the property

---

* This assumes that the angle berth layout will function in the prevailing current/wind conditions without need for finger piers.

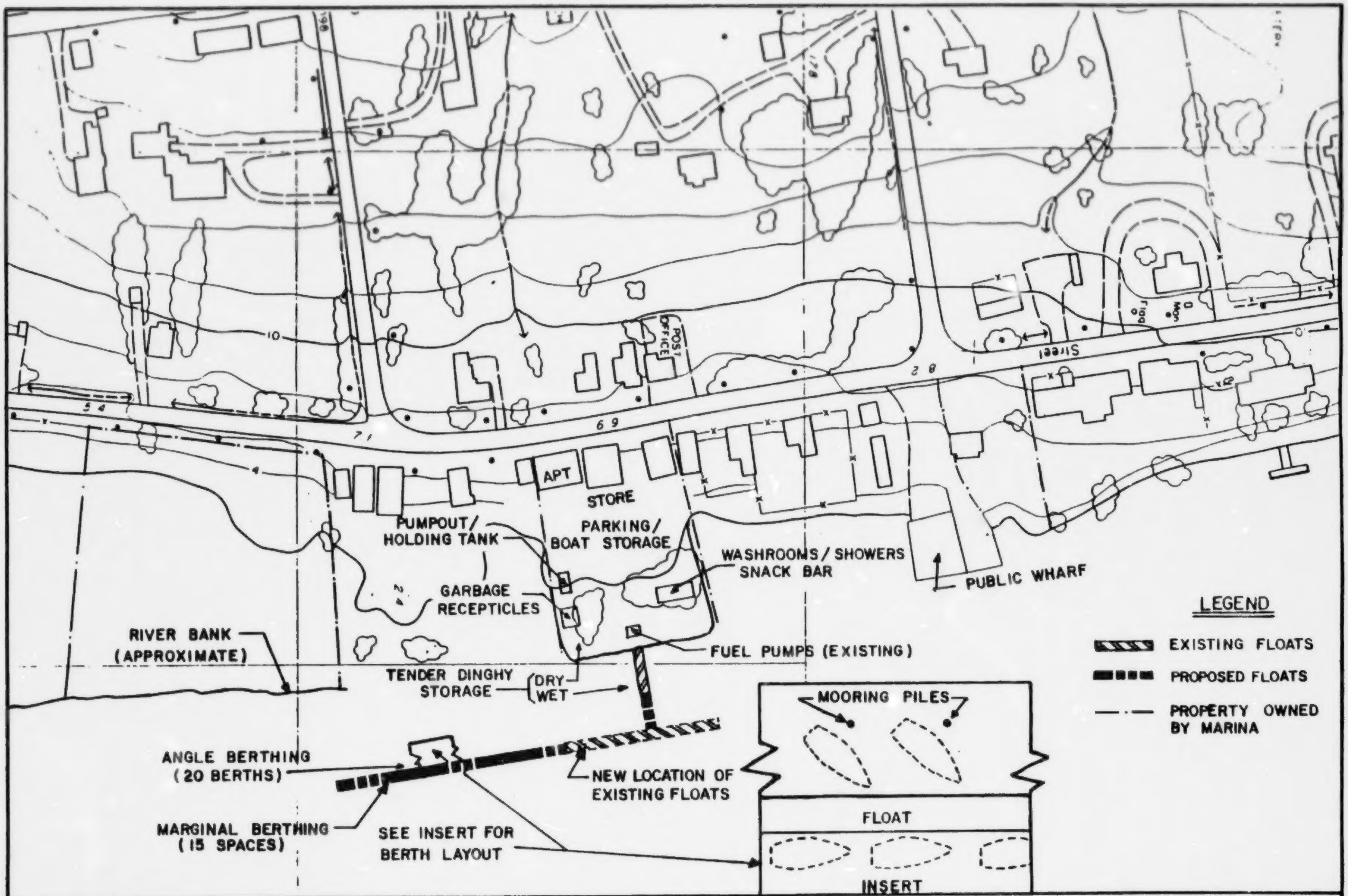

Street
2 8
6 9
7 1
5 4
10
178
198
Mon
Flag
POST OFFICE
APT
STORE
PARKING/
BOAT STORAGE
PUMPOUT/
HOLDING TANK
WASHROOMS / SHOWERS
SNACK BAR
PUBLIC WHARF
GARBAGE
RECEPTICLES
RIVER BANK
(APPROXIMATE)
FUEL PUMPS (EXISTING)
TENDER DINGHY
STORAGE
DRY
WET
ANGLE BERTHING
(20 BERTHS)
NEW LOCATION OF
EXISTING FLOATS
MARGINAL BERTHING
(15 SPACES)
SEE INSERT FOR
BERTH LAYOUT
MOORING PILES
FLOAT
INSERT
LEGEND
EXISTING FLOATS
PROPOSED FLOATS
PROPERTY OWNED
BY MARINA

FIGURE 4.9: SCHEMATIC DEVELOPMENT CONCEPT - GAGETOWN (PHASE II)

FIANDER - GOOD ASSOCIATES LTD.

contained by the marina owner's parcel of land downriver from the existing marina facilities.

The development of this basin is anticipated to require a fixed breakwater structure running along the upriver edge of this property and approximately parallel to the river bank. This breakwater is necessary to minimize the prospects of sedimentation within the berthing basin. This is of particular importance during the spring freshet period when there would be a natural tendency for an increased rate of sedimentation in the berthing basin if it were not protected by this structure.

The final, detailed design of this facility requires verification of the type of material to be dredged and the potential cost associated with this function. This work will determine the feasibility of the inshore set of floats adjacent to the road (and the type of design necessary to ensure no adverse impacts on the existing roadway). Also, it is important that the final design ensure, to the maximum extent possible, that creation of such a berthing basin is a practical approach which does not have unrealistically high probabilities for rapid sedimentation of the berthing basin.

The preliminary work done in this study indicates the possibility of orienting the portion of the breakwater adjacent to the river edge such that it tends to encroach upon the river bed somewhat at the downstream end of the structure. This will constrict the cross-sectional area of the river sufficiently to ensure that the velocity of flow past the opening to the drainage basin is marginally greater than the normal velocity immediately upstream of this point in the river. This reduces the potential for sedimentation at the entrance to the drainage basin.

The preliminary conceptual layout for this facility (Figure 4.10) also indicates a possible general arrangement for the floats in the berthing basin. The configuration shown in this figure would provide space for approximately 75 vessels. The potential arrangement would provide for approximately 16 vessels along the inshore face of the breakwater running parallel to the river bank. These spaces would accommodate the larger sized vessels. The central float would involve berthing on both sides of

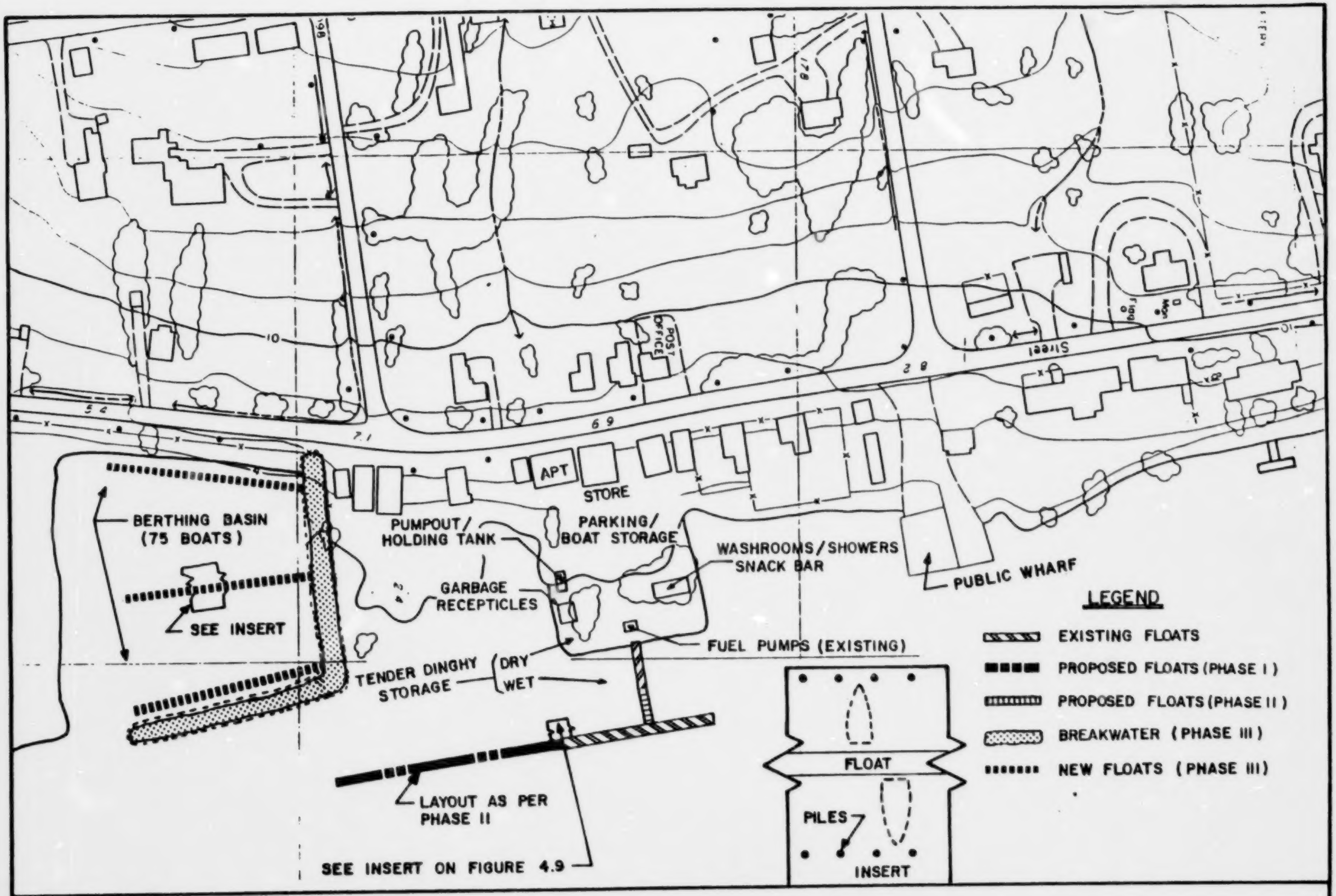

Street
POST OFFICE
APT
STORE
PARKING/ BOAT STORAGE
WASHROOMS/SHOWERS SNACK BAR
PUBLIC WHARF
BERTHING BASIN (75 BOATS)
SEE INSERT
PUMPOUT/ HOLDING TANK
GARBAGE RECEPTICLES
FUEL PUMPS (EXISTING)
TENDER DINGHY STORAGE
DRY
WET
LAYOUT AS PER PHASE II
SEE INSERT ON FIGURE 4.9
FLOAT
PILES
INSERT
LEGEND
EXISTING FLOATS
PROPOSED FLOATS (PHASE I)
PROPOSED FLOATS (PHASE II)
BREAKWATER (PHASE III)
NEW FLOATS (PHASE III)

FIGURE 4.10: SCHEMATIC DEVELOPMENT CONCEPT - GAGETOWN (PHASE III)

FIANDER - GOOD ASSOCIATES LTD.

a single set of floats with a pile mooring system (without finger piers) similar to the design at RKYC. This facility could accommodate approximately 35 vessels of medium size range (26 to 30 feet in length). The inshore set of floats would provide berthing for smaller craft.

Part of the dredging required for the berthing basin in Phase III could be achieved during Phase II. The material required in Phase II to fill the area behind the apartment building and raise the outer portion of the land base which is currently at a lower level than the existing parking lot immediately behind the store could be obtained from the area to be dredged in Phase III (providing it is suitable for this use and meets environmental requirements).

For the long term development of this facility, it is recommended that the operator acquire the property immediately downriver from the proposed Phase III marina basin. As well, this and/or additional property should also be acquired in this vicinity for use as a vehicular parking area for Phase III of the development.

The estimated cost of Phases I and II of development at Colpitts Marina in Gagetown is $130 000. Phase III would cost an additional $750 000.

7). St. Andrews

St. Andrews ranks highly on the overall priority ratings (Figure 3.4) because of its location in one of the province's major, established tourism destination areas. Its high overall priority rating is also influenced by its proximity to the main corridor for non-resident transient traffic (resident and non-resident) moving along the Maine/New Brunswick coastline to the primary cruising destination area, the Saint John River.

The existing fleet resident in the St. Andrews/St. Croix area represents a total of about 50 vessels in the primary size range. About two-thirds of these are based out of St. Andrews. This latter group represents the primary resident demand for mooring/berthing facilities in St. Andrews harbour. In addition, a limited number of the approximate fleet of 20 vessels at the St. Croix Yacht Club currently regularly use facilities in St. Andrews harbour. With development of a marina facility in St. Andrews, a larger number of vessels from the St. Croix and Chamcook areas may also use this facility.

It is evident that the total resident fleet in the entire St. Croix/ Passamaquoddy Bay/Fundy Isles area does not justify consideration of more than one primary marina facility. Given the tourist and recreation services and attractions in St. Andrews, its general location regarding accessibility from the water and its established reputation as a key tourism destination area, it is the logical place for development of a marina in the south west portion of the Bay of Fundy.

Concern has been expressed by the Local Service District Committee in Chamcook regarding provision of a marina facility in Chamcook harbour. However, after examining the resident fleet requirements throughout the Passamaquoddy Bay and extensive discussions with representatives of the transient cruising community from the Saint John River and the American seaboard, it is evident that the primary demand for marina facilities in this area would be at St. Andrews.

The same comments apply regarding potential interest for provision of some components of marina services at St. Stephen/St. Croix and at St. George. Of this group of other locations within the St. Croix/Passamaquoddy Bay area, St. Stephen/Todds Point represents the location with the greatest potential because of the existing fleet size at the St. Croix Yacht Club. Although it is evident that there is demand for only one marina facility in the western Fundy portion of our Study Area and that this facility be provided at St. Andrews, it is also desirable to enhance development of boating activities in both the St. Croix and Chamcook areas by providing the following:

1). In the St. Croix river, boating activity should be enhanced by providing eight moorings at the St. Croix Yacht Club on Todd's Point. These could be available on a rental basis for either short or long term use (with the priority being given to short term use). This could be complemented with a set of floats to be used as an offshore berthing base for transient craft (floats include 2 units, 30 feet by 10 feet each). If other efforts to construct a mid-tide barrage at St. Stephen are successful, that would enhance the practicality of increasing the float system at the St. Stephen wharf.

2). For Chamcook harbour, it is proposed that initially six moorings be installed in an area which would not interfere with the aquaculture activities and the waterlots which are currently leased in this harbour. These moorings should be administered by the Chamcook Local Service District Committee. As demand warrants, additional moorings could be installed and medium term expansion could include provision of an offshore berthing float for short term layovers by transient craft.

The extent of boating at St. George is currently limited to the occasional visit by transient boats (both resident and non-resident). Given the limited recreational boating activity in this area, facilities are not warranted at this time. If demand should increase substantially, the first step in enhancement of service at St. George would be provision of a limited number of moorings. This would provide the opportunity for visiting craft to moor securely in the harbour and acquire access to the shore near the downtown area.

Another factor affecting general marina development in the Fundy Isles area is that associated with the resort development currently underway on Campobello Island. This project involves a major development of seasonal and full-time resort homes which will probably include future provision for a marina component. This development will definitely enhance the level of transient vessel activity in the Fundy Isles/Passamaquoddy area and should be encouraged.

The other major potential development affecting marina requirements in the Fundy Isles/Passamaquoddy vicinity is the Fundy Isles National Marine Park. The facilities proposed in this report for St. Andrews do not include consideration for this possible marine park development. However, should this park development occur, there will be substantially increased boating activity regarding at least the tour boat business out of St. Andrews harbour (the level of demand would vary depending on which Park option might be implemented).

Existing boating facilities in St. Andrews are limited. Boating is accommodated through a combination of individual, club, municipal and federal efforts and facilities. The key existing facilities are the Public Wharf and the clubhouse. The St. Andrews Yacht Club (jointly with the town) is currently upgrading the clubhouse node of the waterfront.

The general development prospects for St. Andrews harbour have been given substantial consideration in the recent past. Harbour development was considered in the recently completed Transportation Background Document for the St. Andrews Area Development Plan. In addition, a more detailed engineering study of marina development in the St. Andrews harbour has recently been conducted by Public Works Canada on behalf of the Small Craft Harbour Branch of Fisheries and Oceans Canada. The results of the various activities associated with harbour development in St. Andrews indicate a number of features which provide general guidelines for development of marina facilities in this harbour. These features are:

1). St. Andrews harbour would require some form of wave protection for a marina facility. As well, the subsurface conditions along the north shore of St. Andrews harbour are such that rock dredging would be required throughout most of the inner harbour between North Point and the existing Government Wharf at the end King Street (Figure 4.12) if the berthing area were located inshore of the low tide line. Therefore, the berthing basin should be offshore of the intertidal zone to avoid expensive dredging costs (and potential on-going maintenance costs resulting from siltation of the basin).

2). The shore front in St. Andrews harbour is highly susceptible to erosion. Development of any structures or facilities in the harbour should recognize the sensitive nature of the shoreline material and designs should minimize the interruption of the existing coastal processes within the harbour area. This includes special consideration for any major fixed structure which could seriously alter the erosion/sedimentation processes along the entire, susceptible shoreline of the harbour area.

3). The Public Wharf is a key focal point for tourism activity in the downtown area of St. Andrews. Marina development as close as possible to this area would be an asset to the entire business community in the downtown core (direct visibility of the marina from the core being a key asset).

4). Development of marina facilities in St. Andrews should be done in a manner which is compatible with the existing commercial fishing activities. Future uses of the Public Wharf must recognize the continued need for commercial fishing activities at this wharf. A fuel depot is required somewhere in the harbour for both the commercial and recreational functions.

5). For marina facilities in St. Andrews, design concepts should be based on providing a wave protected inner harbour complex. This complex should accommodate both the commercial fishing and recreational boating activities in a manner which complements the two functions but provides the maximum possible separation of these activities.

6). Given the wave climate characteristics identified by the recent Public Works Canada study, it is recommended that final design of facilities in St. Andrews harbour should further explore utilizing floating timber wave protection structures of a design similar to those used by the Small Craft Harbours Branch in Nova

Scotia. Other, more expensive types of fixed wave protection should be considered only if further detailed evaluation proves the floating timber structure will not adequately provide the protection required during the recreational boating season.

7). Washrooms and showers accessible to the public should be installed at the St. Andrews Yacht Club clubhouse (or on the wharf).

Because of the importance of tourism to the economy in St. Andrews, the marina development is seen as a complementary function to all existing businesses. Given this, and the various guidelines outlined in the above list, it is proposed that the recreational boating development concept for St. Andrews harbour be consistent with the general marina proposal prepared by Fiander-Good Associates Ltd. in the "Transportation Background Document" of the "St. Andrews Area Planning Study".

Figures 4.11, 4.12 and 4.13 illustrate the general development concept for St. Andrews harbour and the associated marina facilities. The design concept in this harbour is more difficult to achieve than those on the east coast and the Saint John River because of the large tidal range and the relatively exposed character of the harbour.

Figure 4.11 presents a general overview of the proposed harbour development scheme. This scheme provides for a marina with two options regarding access to shore (only one of these need be included in the final design). One land access option involves a set of floats between the recently constructed new floats at the Public Wharf and the proposed marina berths. The other option involves an approach walkway connecting the marina berthing area to the St. Andrews Yacht Club at the foot of Douglas Street (this could be a combination floating/pile supported structure). This concept is essentially the same (but has a slightly different orientation) as the one shown in the "Transportation Background Document" of the "St. Andrews Area Planning Study". The orientation showw in Figure 4.11 is probably better regarding wave action in the berthing basin.

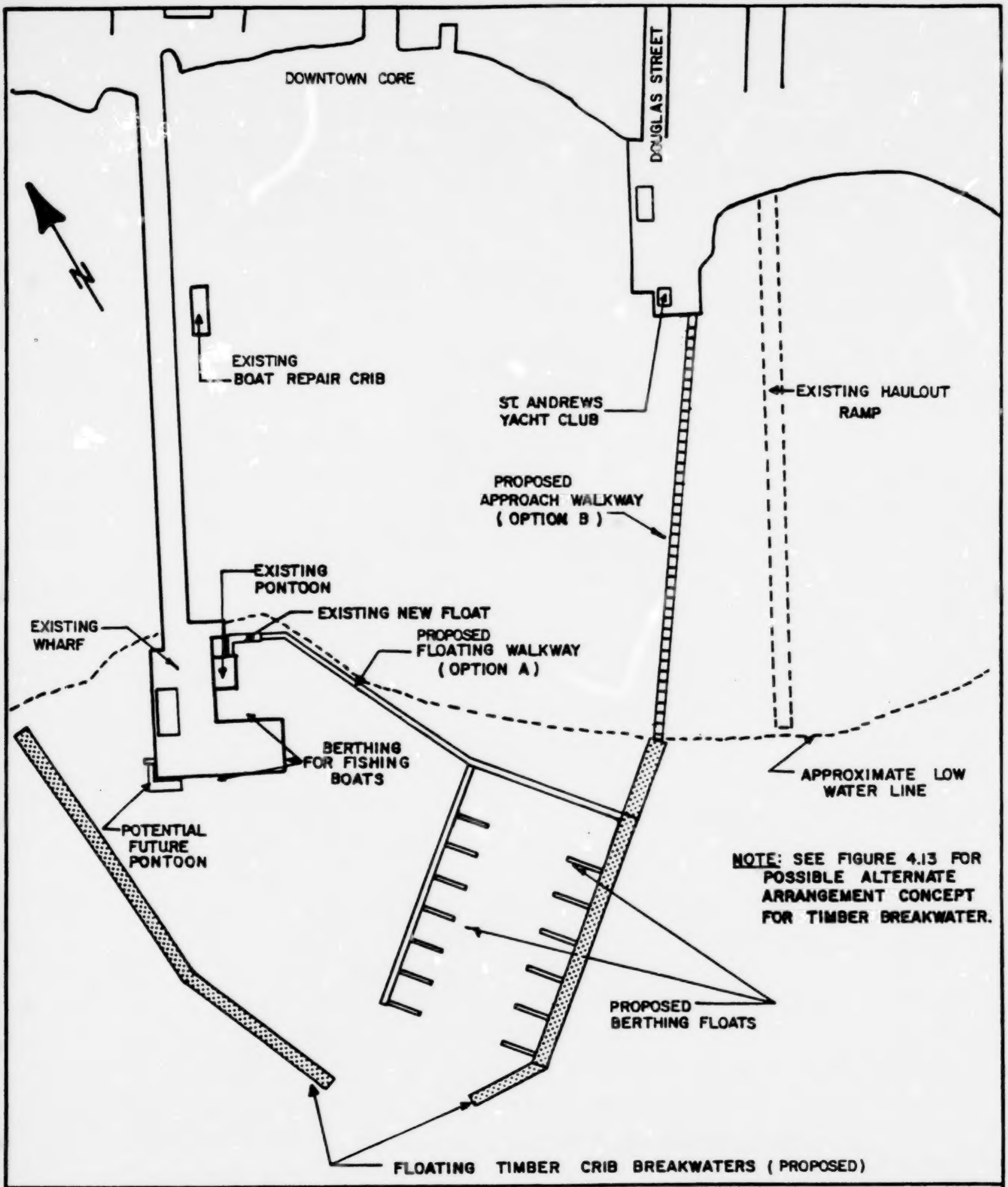

DOWNTOWN CORE
DOUGLAS STREET
N
EXISTING BOAT REPAIR CRIB
ST. ANDREWS YACHT CLUB
EXISTING HAULOUT RAMP
PROPOSED APPROACH WALKWAY (OPTION B)
EXISTING PONTOON
EXISTING NEW FLOAT
EXISTING WHARF
PROPOSED FLOATING WALKWAY (OPTION A)
BERTHING FOR FISHING BOATS
APPROXIMATE LOW WATER LINE
POTENTIAL FUTURE PONTOON
NOTE: SEE FIGURE 4.13 FOR POSSIBLE ALTERNATE ARRANGEMENT CONCEPT FOR TIMBER BREAKWATER.
PROPOSED BERTHING FLOATS
FLOATING TIMBER CRIB BREAKWATERS (PROPOSED)

FIGURE 4.11: PROPOSED DEVELOPMENT CONCEPT - ST. ANDREWS

FIANDER - GOOD ASSOCIATES LTD.

The marina facility would provide berthing capacity for approximately 30 vessels. The proposed size of the marina development is based on the anticipated level of utilization by the resident fleet as well as provision of capacity for the anticipated growth in transient traffic (both resident and non-resident). This latter component of traffic represents a demand equal to or greater than that associated with the resident fleet.

The primary benefit of the marina facilities in St. Andrews will be derived from the impacts associated with general tourism activity. This will be generated by the resident and non-resident transient craft. There are also good prospects for substantial increases in the growing functions associated with the tour boat and charter businesses operating out of this harbour. These functions would be greatly enhanced if the Fundy Isles Marine Park is developed.

The overall development concept (Figures 4.11) provides for integrating floating timber wave protection units into the major floats associated with the marina berthage system. As well, a set of floating timber wave protection structures are proposed along the west and south side of the existing pierhead to provide complementary protection to both the marina and the existing Public Wharf which is used for commercial fishing purposes as well as recreational boating activities (additional short term berthing could be achieved by using the inshore face of the southwest wave protection structures).

This combined system of floating timber wave protection structures would create a protected inner harbour which would accommodate both the recreational boating and the commercial fishing requirements. At the same time, it would provide for substantially enhanced utilization of the existing wharf.

Figure 4.12 illustrates a proposed reorganization of the mooring scheme in the general harbour area. This identifies specific areas for mooring

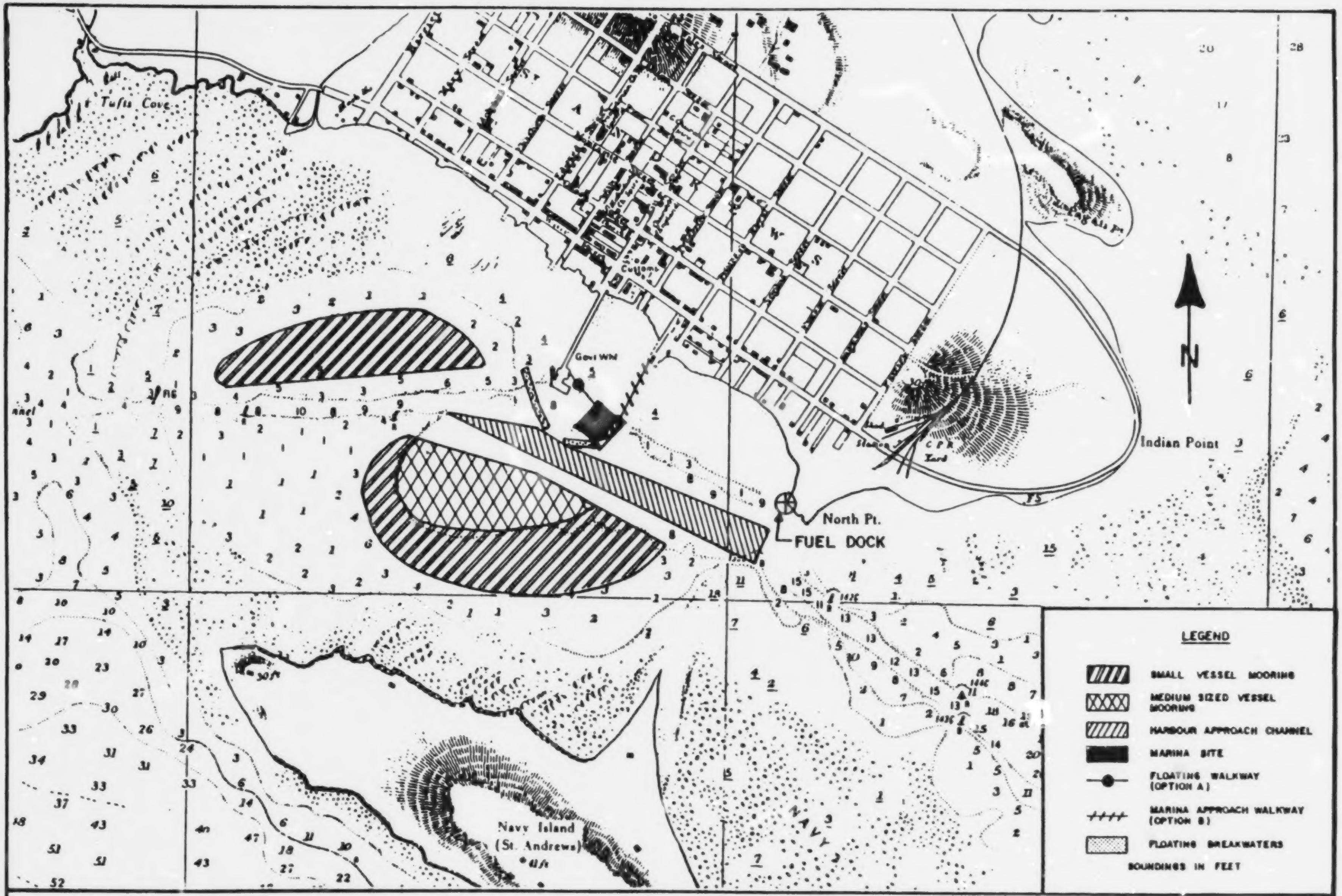

Tufts Cove
Govt Wf
Customs
Station
C P R Yard
Indian Point
North Pt.
FUEL DOCK
N
NAVY
Navy Island (St. Andrews)
LEGEND
SMALL VESSEL MOORING
MEDIUM SIZED VESSEL MOORING
HARBOUR APPROACH CHANNEL
MARINA SITE
FLOATING WALKWAY (OPTION A)
MARINA APPROACH WALKWAY (OPTION B)
FLOATING BREAKWATERS
SOUNDINGS IN FEET

FIGURE 4.12: GENERAL HARBOUR DEVELOPMENT CONCEPT - ST. ANDREWS

FIANDER - GOOD ASSOCIATES LTD

shallow, moderate and deeper draft vessels. This general concept also provides for slight realignment of the main approach channels between the bars at both ends of the harbour and the proposed marina/Public Wharf complex.

The primary reason for locating the berthing facility as indicated is to avoid dredging. The final design should be such that it will not be necessary to conduct any rock dredging (based on the limited subsurface data available, it appears that rock occurs within one to two feet of the surface throughout the general area between Douglas Street and the existing Public Wharf).

The general design concept obviously requires further detailed study to establish the exact configuration and details for the berth floats and the timber wave protection system. In particular, the design details of the anchorage system require special consideration. It is anticipated that given the large tidal range and the limited overburden, it may be necessary to provide an anchorage system involving piles driven into bedrock and secured with concrete. However, chain anchor systems should be carefully examined, particularly for the floating protection on the southwest side of the complex.

Variations of the preliminary concept shown in Figure 4.11 may be required. One possibility may be a separate set of floating timber breakwater facilities east of the marina floats rather than the combined floats/wave protection as illustrated. The possibility of this arrangement is illustrated in Figure 4.13. None the less, all possibilities for using floating timber wave protection should be thoroughly exhausted before other fixed and more expensive options are considered.

The other key component of services required for both recreational and commercial boating activity in St. Andrews harbour is that associated with a fuel depot. The proposed arrangement in Figures 4.12 and 4.13 indicates

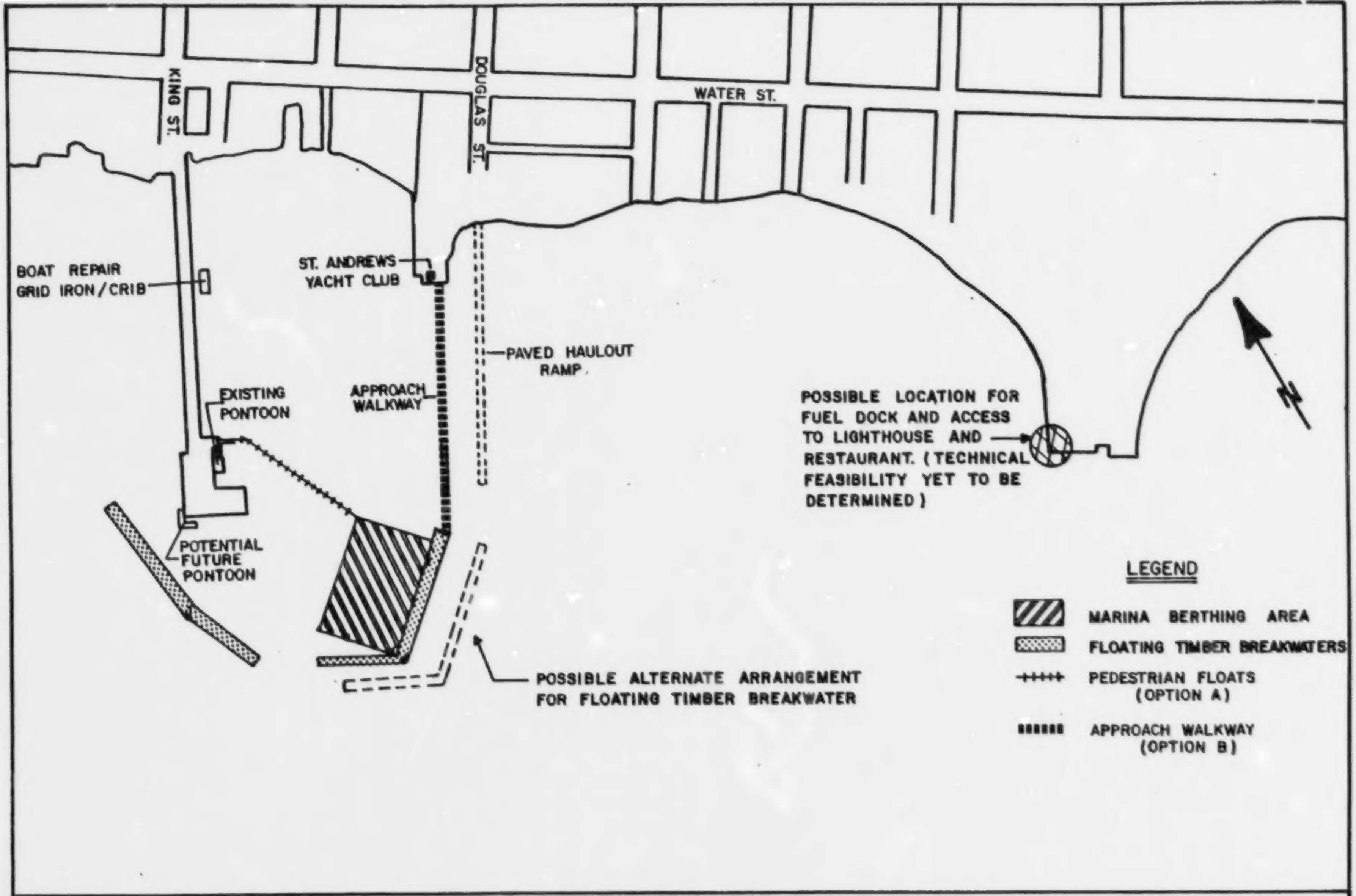

KING ST.
DOUGLAS ST.
WATER ST.
BOAT REPAIR GRID IRON / CRIB
ST. ANDREWS YACHT CLUB
PAVED HAULOUT RAMP.
EXISTING PONTOON
APPROACH WALKWAY
POTENTIAL FUTURE PONTOON
POSSIBLE LOCATION FOR FUEL DOCK AND ACCESS TO LIGHTHOUSE AND RESTAURANT. (TECHNICAL FEASIBILITY YET TO BE DETERMINED)
N
POSSIBLE ALTERNATE ARRANGEMENT FOR FLOATING TIMBER BREAKWATER
LEGEND
▨ MARINA BERTHING AREA
░ FLOATING TIMBER BREAKWATERS
+++++ PEDESTRIAN FLOATS (OPTION A)
▪▪▪▪▪▪ APPROACH WALKWAY (OPTION B)

FIGURE 4.13: PROPOSED DEVELOPMENT CONCEPT - ST. ANDREWS

FIANDER - GOOD ASSOCIATES LTD.

development of a fuel dock at the private development at North Point by the Lighthouse Restaurant. This service would complement the general development proposal for St. Andrews. At the same time, it would provide the operator of the existing Lighthouse Restaurant (and potential future developments at North Point) an opportunity to provide direct access to/from the water. Details of the design of this element of the recreational boating facilities in St. Andrews must be given careful consideration because of the location adjacent to the approach channel and the increased potential for wave action due to increased, more direct exposure to the southeast winds from the Bay.

This location for the fuel depot also requires careful design relative to the impact on the safety of navigation through the approach channel. As well, it necessitates detailed consideration because of the desirability of minimizing dredging requirements throughout this harbour entrance area. This is a highly sensitive area not only in terms of initial dredging but, as well, in terms of potential siltation problems which would require extensive ongoing maintenance dredging. Detailed design consideration may indicate this component of the overall concept is not practical or that it may only be accessible during the upper portion of the tidal cycle. The alternative location for the fuel depot is in conjunction with the existing Public Wharf. Provision of a fuel depot on the Public Wharf could be accommodated but it would require adherence to standards prescribed by the Fire Commissioner of Canada.

The estimated cost of the marina facilities in St. Andrews is $1.1 to $1.4 million*. In addition, a total of $17 000 would be required to install the moorings/float at St. Croix/Todds Point and moorings in Chamcook Harbour.

8). Pointe du Chene

The marina at Pointe du Chene is one of the major facilities on the east coast of New Brunswick. It has been in existence since the late 1970's.

---

* This total also includes the portion of costs which should be allocated to the commercial fishing function.

This facility has a large resident fleet. It provides a major role as a harbour of refuge for recreational boaters along this portion of the Northumberland Strait. The facility is currently developed to near the maximum capacity given the physical constraints associated with the breakwaters and other public wharf facilities at this location. No major expansion is proposed at this location. However, there are some improvements which are necessary. They include:

1). A redesigned and improved pile float retention system. This is necessary to alleviate annual recurring damage and associated maintenance caused by ice during the winter season.

2). Slightly increased berthing capacity by providing floats along the inshore face of the outer (eastern) breakwater. This would provide berthing for an additional 8 vessels.

3). Expansion of the existing clubhouse to include provision for expanded washrooms, shower facilities and washer/dryer facilities.

4). Limited dredging in the area of the floats adjacent to the parking lot and clubhouse building on the inshore (southwest) portion of the inner berthing basin (it is anticipated this dredging can be done with a clam bucket from shore).

The above primary improvement program would accommodate the basic requirements of the resident fleet and enhance the opportunities for service to resident and non-resident transient craft visiting from other areas.

The estimated cost of the major improvements listed above is $75 000.

9). Bathurst Marina

The basic requirements at Bathurst have been accommodated as a result of the recent construction of a new marina facility in this harbour. The primary fleet size at Bathurst is moderate and there is moderate opportunity for expansion. This marina provides an important role as a harbour of refuge and has current charter activities operating out of this facility. However, there is only low probability of transient activity in the Bathurst area due to its isolation from reasonably large transient fleets.

All 88 available berths at this facility have been purchased. However, last year only about 60 boats used this facility. About 50 percent of these are regular users of the available berths. Consequently, there is an inherent capability for expansion during the short term, given the facilities which are available.

In light of the existing facilities and services which have recently been installed at Bathurst, the requirements of the resident and non-resident recreational boaters in this area have, for the most part, been satisfied. Therefore, no major improvements are recommended at this location.

10). Belleisle Bay/Long Reach

There is a need for a marina in this portion of the Saint John River. This is required to fill a gap in the large spacing between the existing facilities in the Saint John area and the marina at Gagetown. The Belleisle Bay/Long Reach area (Figure 3.4) is an intermediate point between these existing activity centres. It represents a logical limit for marina spacing given the distance which can typically be cruised by sailboats in a given day. There is also a resident fleet of 40 to 50 vessels located in the immediate Belleisle Bay area.

A facility on the south shore of these bodies of water would have convenient automobile access to the major population base located along the Saint John to Sussex corridor. A marina in this area should include the following facilities and services:

1). A capacity for a total of 70 vessels (ranging in size from 20 to 40 feet with drafts of 3 to 7 feet). This should be broken down on the basis of about 40 berths and 30 moorings;

2). Water and power at all berths at the marina;

3). Washrooms, showers, ice and telephone service;

4). Sufficient parking to accommodate up to 75 cars with provision for long term expansion beyond that value if possible; and

5). Fuel (gas and possibly diesel) as well as a launching ramp for the smaller to intermediate sized boats.

Figure 3.4 illustrates the general area for a site to accommodate the existing deficiency in marina facilities in this middle portion of the Saint John River. However, the work to date has not enabled identification of a specific site for this facility.

The final decision regarding site selection for marina development in this area should involve a more detailed evaluation of the costs of developing at the Piers Marine site and include additional investigations of possible alternatives in somewhat more protected locations in the same general vicinity. Subsequent site selection and feasibility analysis should not however, ignore the positive features associated with the obvious interest of this private entrepreneur (including his potential involvement with operation of expanded marina facilities at another nearby site within this general vicinity such as Kingston Creek and Gorham's Creek). If an alternate site is selected as the perferred site for marina development, provision should be made for at least upgrading the existing access floats and mooring facilities at the Piers Marine site.

The other consideration in this general area is that associated with the public landing at Evandale. This facility currently is utilized by the operators of the Eveleigh Hotel as a fuel pumping station with both gas and diesel fuel being available. This location is also a popular stop because of the opportunity for access to the hotel/dining facilities. Although the river configuration at Evandale is not ideal as an alternative for development of a marina in this general area, there is sufficient attraction to this establishment to warrant expansion of the nominal facilities necessary to enhance the opportunities for land/water interface at Evandale. To achieve this, it is recommended that six moorings be installed on the upriver side of the Public Wharf.

The approximate cost of a marina in this vicinity capable of providing the facilities and services listed on page 4.39 is $0.9 million.

11). North Head

The Grand Manan Marina at North Head provides service primarily to transient vessels. This includes both resident and non-resident activity.

The existing recently developed facility includes a marina building with a dining room, washrooms and showers. Waterside facilities include a floating pontoon and a recently installed fuel dock which will serve both recreational boats and commercial fishing vessels. This is an essential component of service at North Head.

One of the key objectives of the proposed provincial strategy is to substantially increase the volume of non-transient vessels visiting the Bay of Fundy and Saint John River system from the New England states. North Head is a strategic location as a overnight layover spot for all transient traffic moving along the Bay of Fundy. It is important that sufficient capacity be provided at this location early in the implementation phase of the provincial boating development strategy. Therefore, the following expansion of the existing marina is recommended (Figure 4.14):

1). Providing an additional 10 moorings in Flagg Cove immediately west of the approaches to the existing recreational pontoon and fisherman's wharf. It should be noted that the marina already has seven moorings in this area. It is recommended that the positioning of these moorings be examined to optimize their location and that an additional 10 moorings be placed westward from the existing facilities.

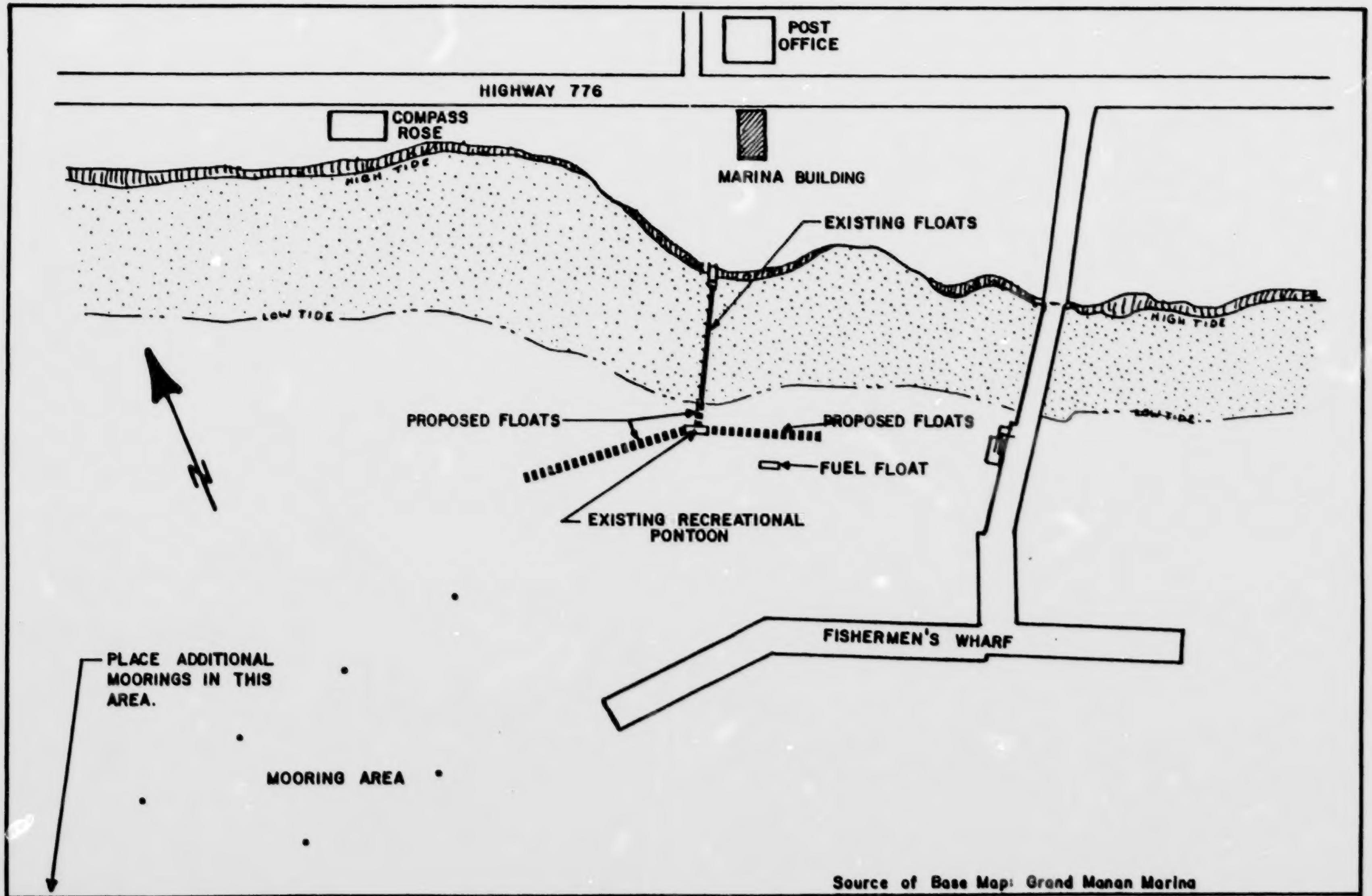
2). Expanding the onshore facilities to include washer/dryer facilities and an ice dispensing unit.

3). Extending the float system as illustrated in Figure 4.14. This extension should include a). provision of power and water to the floats; b). relocating the floats outward sufficiently from the low tide line to allow berthing at low tide; and c). extending the floats about 120 feet eastward from the existing pontoon and 200 feet westward from the existing pontoon.

Examination of the mooring area indicates that it is in a relatively exposed location which is subject to significant sea swells during southeast wind conditions. This is the primary reason for providing increased opportunities for recreational berthing/float facilities within the protected area behind the fisherman's wharf.

The preliminary float extension arrangement shown in Figure 4.14 is based on the existing hydrographic chart data regarding low water depths. The design of the float extensions at this facility should include a more detailed sounding survey to establish the current water depth in this area. It will be possible at that time to confirm the exact location of the extension of the floats and the extent to which the existing float should be moved out into deeper water.

Additional floats are suggested for this location because of the desirability of providing opportunity for easy access to the marina and


POST OFFICE
HIGHWAY 776
COMPASS ROSE
MARINA BUILDING
HIGH TIDE
EXISTING FLOATS
LOW TIDE
HIGH TIDE
LOW TIDE
PROPOSED FLOATS
PROPOSED FLOATS
FUEL FLOAT
N
EXISTING RECREATIONAL PONTOON
FISHERMEN'S WHARF
PLACE ADDITIONAL MOORINGS IN THIS AREA.
MOORING AREA

Source of Base Map: Grand Manan Marina

FIGURE 4.14: SCHEMATIC DEVELOPMENT CONCEPT - NORTH HEAD HARBOUR

FIANDER - GOOD ASSOCIATES LTD.

the land side without having to crawl over several large fishing boats at the fishermen's wharf. The proposed extensions should supply capacity for about eight cruising class vessels (assuming use for marginal berthing with no doubling up in the berthing function). This also assumes there would not be sufficient water at low tide to accommodate vessels on the inshore side of the floats. It may be possible to arrange the floats to accommodate berthing on the inshore face of the floats. If the floats are moved out sufficiently to allow berthing on the inshore face as well, the overall berthing capacity of the proposed float arrangement shown in Figure 4.14 would increase to approximately 15 vessels. This, in conjunction with the additional capacity in the mooring area is considered to be sufficient to handle the transient vessel demand in the short term.

The overall capacity of the offshore side of this proposed facility (about 8 vessels) could be doubled by allowing vessels to lie abreast of the vessel adjacent to the floats. In fact, the capacity could be tripled or quadrupled (to 24 or 32 vessels) by having boats berth 3 or 4 abreast. This multiple berthing approach seems realistic at this location which may experience a limited number of relatively large flotillas of boats from individual marinas/clubs/organizations.

The proposed improvements at North Head are estimated to cost $175 000.

4.2.3 Facilities With Group III Priority Ratings

For the recreational boating facilities in Group III of the priority rating assessment illustrated in Figure 3.5, only the new facilities or those which have requirements for major potential upgrading have been described with the assistance of a preliminary sketch of the conceptual layout for the facility. Others are described simply in terms of the major potential capital program items and the corresponding preliminary cost estimates.

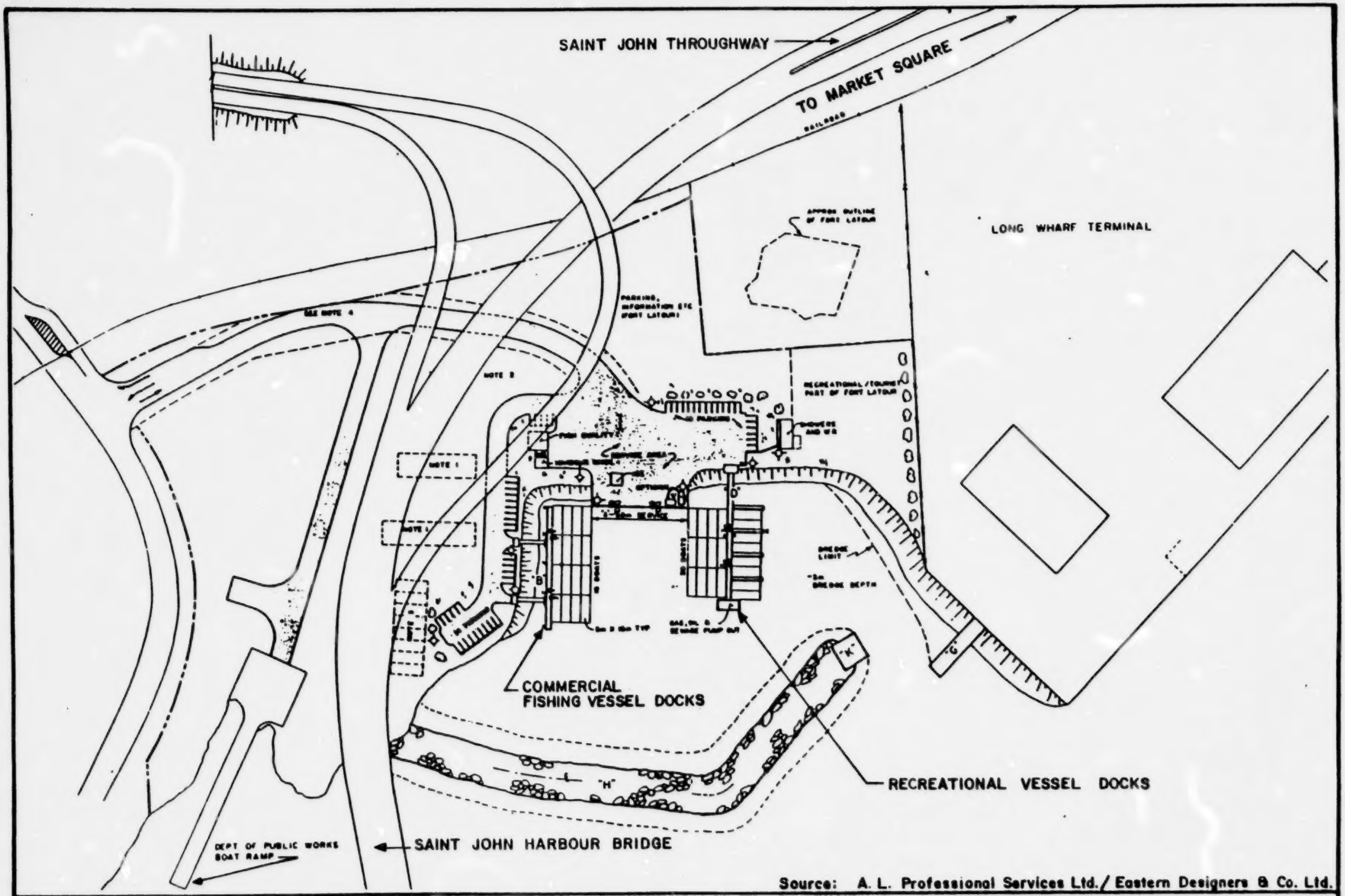
12). Saint John Outer Harbour

The Saint John Outer Harbour facility is one of the most important facilities of the 12 included in the third priority group shown in Figure 3.5. This facility is proposed partly because of its importance regarding the harbour of refuge requirements for the Bay of Fundy coast. It is also necessary to provide a harbour appropriate for accommodating recreational boats while awaiting slack tide at the Reversing Falls rapids. In addition, it would play a key role in conjunction with the major recreational boating activities in the Saint John River. This facility would provide a good base for introducing transient vessel/operators to the Saint John River system. As well, it would be a base for escorting visiting craft through the Reversing Falls rapids.

This facility has been the subject of a separate detailed evaluation which included site selection, facility design and costing. Several sites were evaluated and the most desirable location identified was that adjacent to the east end of the Saint John Throughway immediately west of the Long Wharf commercial cargo terminal (Figure 4.15). This location is close to the downtown area and within reasonable distance from Market Square which is the focal point for non-commercial waterfront activities in the Saint John core.

This development would be used jointly by both commercial fishing vessels and recreational boats. The facility includes fixed wave protection structures for the common berthing basin with separate berthing areas for commercial and recreational vessels. As well, the recreational components include: provision for parking, washroom and shower facilities. A pay telephone should be available to provide convenient access to taxi service for transportation throughout the adjacent downtown area of Saint John.

The approximate total cost of this combined commercial fishing and recreational boating facility is estimated to be about $5.25 million (1986 dollars). It is important to realize, however, that this development is a shared facility with the commercial fishing function comprising the major portion of the overall annual activity. The total cost allocated to recreational boating would be about $600 000. This estimate is based on pro-rating the total $5.25 million cost on the basis of the relative annual utilization of this facility by recreational boats. Given the seasonal use of this facility for recreational purposes, it is assumed


SAINT JOHN THROUGHWAY
TO MARKET SQUARE
RAILROAD
LONG WHARF TERMINAL
APPROX. OUTLINE OF FORT LATOUR
PARKING, INFORMATION ETC (FORT LATOUR)
RECREATIONAL / TOURIST PART OF FORT LATOUR
SHOWERS AND W.C.
SEE NOTE 4
NOTE 2
NOTE 1
NOTE 1
FISH QUALITY
SERVICE AREA
OPTIONAL
10 BOATS
20 BOATS
DREDGE LIMIT
-3m DREDGE DEPTH
GAS, OIL & SEWAGE PUMP OUT
"B"
"D"
"G"
"H"
"K"
COMMERCIAL FISHING VESSEL DOCKS
RECREATIONAL VESSEL DOCKS
SAINT JOHN HARBOUR BRIDGE
DEPT OF PUBLIC WORKS BOAT RAMP

Source: A. L. Professional Services Ltd./ Eastern Designers & Co. Ltd.

FIGURE 4.15: SCHEMATIC DEVELOPMENT CONCEPT - OUTER SAINT JOHN HARBOUR

FIANDER - GOOD ASSOCIATES LTD.

that the recreational portion of this development would be leased to an appropriate private (or municipal) operator for operation during the boating season.

The recreational boating requirements in the portion of the Bay of Fundy east of Saint John were also considered. The coastal area east of Saint John is rugged and exposed as far as Fundy National Park. The park area (Alma) is the practical eastern limit of coastal cruising territory in the Bay. There is currently no resident primary fleet along this portion of the coast east of Saint John.

The only existing harbours along this coast are at St. Martins and Alma. Both of these locations are accessible only at high tide. Alma has a potential attraction in that it is immediately adjacent to the Fundy National Park. However, it is a substantial distance east of Saint John and the harbour dries out at low tide.

St. Martins has recently received substantial improvements which makes it a more attractive harbour at high water. However, it is also currently inaccessible at low tide. Local initiatives envision development of a mid-tide barrage which would maintain sufficient water at low tide to float recreational vessels. Although this would enhance the desirability of St. Martins harbour as a destination for overnight cruises out of Saint John, the harbour would still only be accessible at high tide. Consequently, the mid-tide barrage is not a primary requirement for the recreational boaters being considered in this study. Even for refuge purposes, the harbour would only be accessible at high tide. The barrage proposal is probably more appropriately considered as part of other, general tourism related initiatives associated with development of this community.

13). Bouctouche

Our assessment indicates a need for a marina facility based on the existing fleet requirements and the current degree of commitment by boaters in this area to participate in the construction of such a facility.

The Bouctouche Marina Committee has completed a study which provided a concept plan for marina development. That project involved substantial preliminary engineering. Consequently, the resulting conceptual layout derived in that study involved more attention than would have been possible given the many sites being evaluated in this province wide project. The proposed marina layout is illustrated in Figure 4.16.

This facility provides a protected berthing basin for about 100 vessels. This seems adequate to accommodate the existing as well as the medium to long term demand.

The general site for this marina appears to be in a desirable location regarding future sedimentation implications. The facility is in a cove at a bend in the Bouctouche River. Fortunately, the site is on the high velocity side of the river channel which should reduce the prospects of sedimentation in the drainage basin.

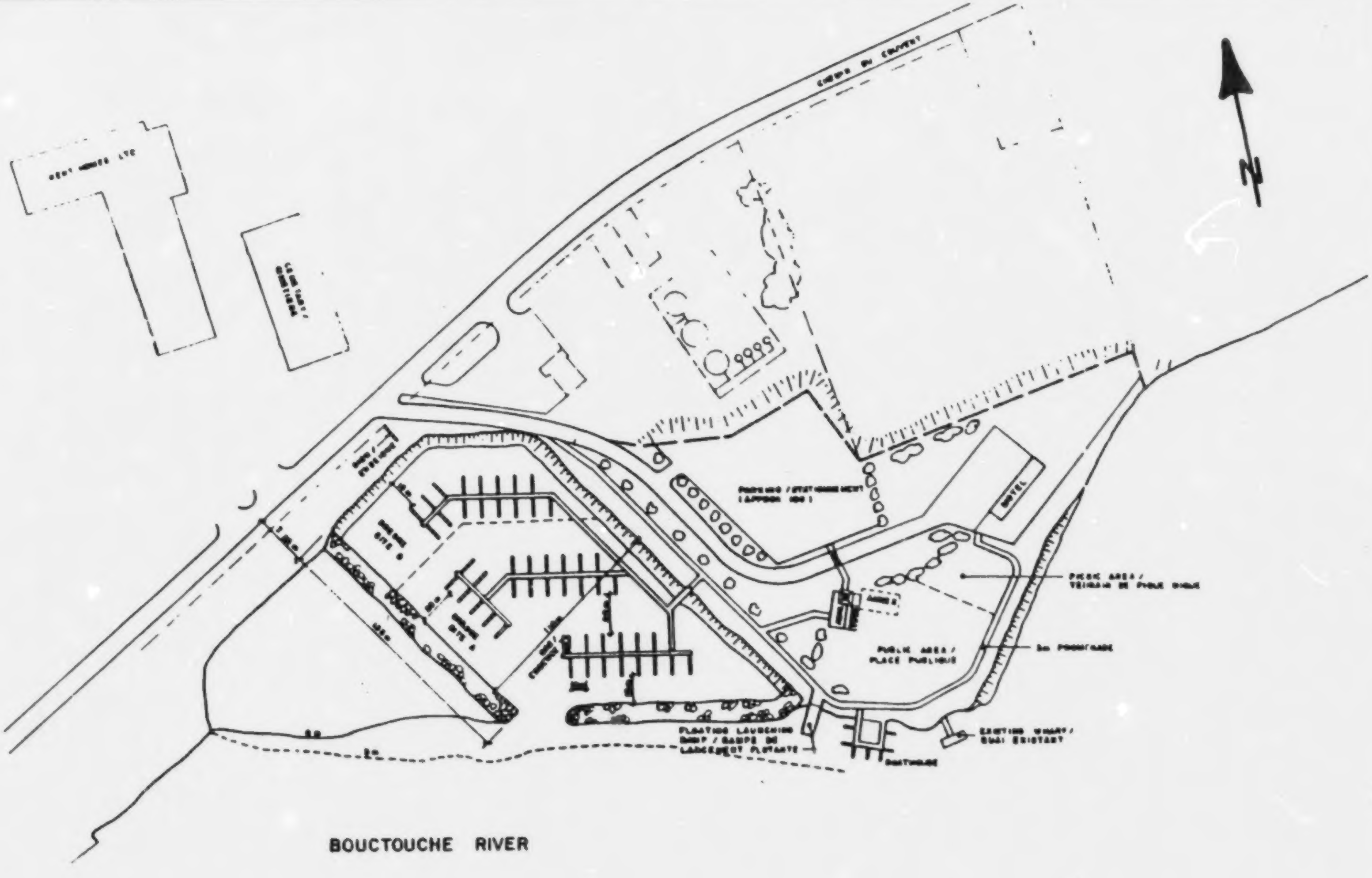
The marina development concept and cost estimate prepared by A.L. Professional Services Ltd. for all elements of the marina development as illustrated in Figure 4.16 is about $975 000 (adjusted to 1986)*. It may be possible to reduce this total cost somewhat by utilizing less expensive, floating timber wave protection stuctures. Our preliminary review of the wave climate indicates that the more expensive, rubble mound breakwater structures may not be justified at this site. This should be given further consideration at the final design stage of the project.

14). Fredericton

There are currently about 50 boats in the primary size category operating out of the Fredericton Boat Club. However, during the boating season many

---

* This includes $205 000 for a club building/lounge which serves functions in addition to that necessary for the basic requirements for recreational boating.


N
CHEMIN DU COUVENT
CEMETARY / CIMETIERE
PARKING / STATIONNEMENT (APPROX. 100)
MOTEL
PICNIC AREA / TERRAIN DE PIQUE-NIQUE
PUBLIC AREA / PLACE PUBLIQUE
EXISTING WHARF / QUAI EXISTANT
BOATHOUSE
FLOATING LAUNCHING RAMP / RAMPE DE LANCEMENT FLOTTANTE
BOUCTOUCHE RIVER

Source: A. L. Professional Services Ltd.

FIGURE 4.16: SCHEMATIC DEVELOPMENT CONCEPT - BOUCTOUCHE

FIANDER - GOOD ASSOCIATES LTD.

of these are kept downriver in locations such as Oromocto, Gagetown or Douglas Harbour or at scattered points throughout the river and lake system.

The two key requirements of the primary fleet in Fredericton are:

a). improved winter storage facilities; and
b). improved general marina facilities and water/land accessibility.

An important requirement for the component of the recreational boating fleet which this study addresses is that associated with winter storage facilities and services. At the same time, the water related activity at Fredericton could be increased if there were improved opportunities for access to the main areas of interest to boaters when they travel upriver to Fredericton.

The ideal location for improved water/land access is in the immediate downtown core in the vicinity of the recently constructed Regent St. Wharf which has been used as a base for riverboat operations. It would provide access directly to the downtown core including the shops, the playhouse, hotels and dining facilities.

The major problem with this location, however, is its inaccessibility for sailboats and larger power boats because of the limited vertical clearance available under the railway bridge. It is suggested that the city use their good offices to negotiate an arrangement which would provide the opportunity to have the railway bridge opened for passage of waterborne traffic during certain periods. However, since this may be difficult to achieve, the railway bridge has been treated as the upper limit of navigable waters for a large portion of the recreational boats being considered in this study.

The other factor which is critical to development of marina facilities in the Fredericton area is the effect of spring freshet levels and the extensive flood plain area. Given the railway bridge as the upper limit of navigable waters and the flood plain characteristics, the space available along the waterfront which could easily be developed for marina facilities is restricted. Also, given the limited potential demand for resident boating functions for the vessel size class being considered in this study, it does not appear warranted to contemplate extensive marina development in Fredericton solely for the purposes of the primary recreational fleet. However, this should not preclude consideration of other facilities and services oriented at smaller sized recreational craft.

The Fredericton Boat Club is currently considering arrangements to upgrade the existing boatclub facilities. Their plans envision upgrading the grounds and the site at the boat club and expanding the basic services available there. Given the established facilities at the Boat Club and their current expansion plans, it is recommended that any additional development of recreational boating facilities for the primary fleet of boats should be at the Fredericton Boat Club.

The components of the improvement plan proposed for the Fredericton Boat Club are:

1). Provision of 15 additional moorings;

2). Provision of 200 feet of additional linear dock space parallel to the river front (this should include sufficient dockage to extend the primary floats offshore a distance adequate to allow berthing on the inshore face of the floats as well as the offshore face;

3). Installation of fuel pumps;

4). Provision of a security arrangement to control public activity in the storage yard and on the docks; and

5). Increased winter storage capacity (fill and grading to accommodate an additional 10 to 15 boats).

The estimated cost for the improvements at the Fredericton Boat Club identified above is $200 000.

In addition to the major items noted above, it is desirable to install six to eight moorings on the east side of the main river channel immediately south of the Railway Bridge. This would provide a secure mooring opportunity for transient sailboats and larger power boats. Access to the downtown area could then be made by tender dinghy via the Regent Street Wharf. These mooring facilities should be restricted to short term use (existing waterlot leases should be checked to insure the moorings would not infringe on such possible leases).

It is also desirable to expand the dock at the Regent Street wharf to accommodate increased service to power boats. This could be accomplished by installing another facility similar to the existing one. The estimated cost of this project is $75 000.

15). Rothesay Yacht Club

The primary requirements are associated with increasing the berthing/mooring capacity of the facility. This facility currently has a combination of moorings and berth space available. Because of the relatively exposed location, most people who have berths also have a mooring available for use during storm conditions. The growth of this facility is contingent upon providing improved opportunities for either moorings or berthing. The restrictions to expansion are primarily due to the limited water depth available in the cove between the club and Henderson's Point. General indications from the club executive are that bottom material in this area is probably soft and easily dredgable. However, dredging is generally an expensive item and other more economical approaches may be appropriate.

Preliminary consideration was given to the possibilities of expanding the capacity of the mooring basin by rearranging the mooring plan to achieve a more optimum spacing. However, given the existing density of moorings and a preliminary review of the existing layout, it is doubtful that the capacity could be increased by more than about 10 additional boats with this approach. Therefore, the alternatives to providing increased capacity for mooring and berthing at the Rothesay Yacht Club are probably limited to the following options:

1). creating additional mooring area by dredging the cove immediately to the east of the existing moorings;

2). dredging additional space east of the existing east float to accommodate an additional set of floats; and

3). providing floating timber wave protection extending outward from the existing public wharf. This would be combined with extension of the existing two sets of floats outward from the shore.

The first of the three possibilities noted above is probably the least cost-effective. The second suffers from the deficiency that the length of float that could be generated would be limited to that comparable to the existing floats because of the exposed conditions which would exist if they were extending any further outward (ie. beyond the wave protection provided by the existing concrete public wharf structure).

The third alternative provides the greatest opportunity for expanding capacity because the floating timber wave protection would allow the extension of the two existing floats. This could provide opportunity to accommodate expected increases in homeport demand in the short term (an increase of about 150 feet on both floats should be adequate to accommodate the demand in this period).

Preliminary assessment* indicates potential for application of floating timber wave protection at Rothesay. However, exposure at this location is approaching the limit of conditions for which these structures are effective. Consequently, final analysis should require more detailed evaluation of this approach to wave protection.

---

* Based on estimates by Eastern Designers and Company Ltd.

It is also appropriate during further feasibility work at this location to consider realigning the existing two sets of floats to move them closer to the public wharf as well as extending them outward in a northerly direction.

The approximate cost of the anticipated short term expansions (assuming floating timber wave protection and extension of the two existing berthing floats) is about $240 000.

16). Oromocto

The marina facilities at Oromocto are well utilized. The portion of the berthing capabilities allocated to the Boat Club is approaching capacity but there is some surplus at the public docks allocated for use by visiting boats.

The marina owners/users have suggested the desirability of undertaking dredging along the inshore face of the existing floats. However, preliminary examination of the river configuration in this area indicates a potential for natural deposition of material along this shore of the river. Thus, the possibilities of infill and ongoing maintenance dredging would exist. Therefore, it is not recommended that this approach be adopted.

It appears to be possible to increase the short term capacity of this facility by extending the floats downriver for a limited period. This has a disadvantage in that it results in a very long linear float arrangement which requires extensive walking distances. However, the feasibility of this concept should be explored as the first alternative to expanding capacity at this location. To alleviate the negative impact of the length of the resulting linear float arrangement, consideration should be given to a second set of access floats to the shorefront near the downriver end of the linear float. Such consideration would have to recognize the desirability of maintaining access to both sides of the main float for berthing, particularly for small boats. Also, at the lower portion of the main float (below the remains of a former pier which is approximately 150 feet from the existing outer end of the float), it is desirable to maintain access opportunities to both sides of the floats for all sizes of vessels.

A longer term possibility is also mentioned for Oromocto because more detailed examination of sounding information may preclude implementing the proposed short term approach of extending the existing linear float downriver. For the longer term, it is suggested that expansion of capacity at this facility be achieved by providing a second set of berthing floats on the north side of the river running parallel to those which currently exist. Such an arrangement would necessitate access by individual dinghies or by a tender dinghy arrangement which could be provided on demand by the marina attendant who is available during normal hours in the peak boating season.

In addition to the possibilities for expanding overall berthing capacity at this facility, in the short term, the following additional items are recommended:

1). improved restrooms facilities;

2). installation of showers; and

3). extension of the water and power systems on the transient docks.

The estimated costs of these improvements and the basic short term float extension is about $80 000.

A primary deficiency at Oromocto, as with Fredericton, is inadequate winter haulout and storage capabilities. This deficiency generally applies for the entire resident fleet throughout the Grand Lake/Gagetown/Oromocto/Fredericton portion of the Saint John River. However, it is particularly critical at Oromocto. Most of the boats which are based at Oromocto during the boating season are stored at the St. Mary's Boat Club storage area. This facility is old, but still functional. In the medium term, improvements or a replacement for this facility will be required. One option for improved storage would include negotiations with the Town of Oromocto to develop a secured compound on part of the undeveloped parking area adjacent to and downriver from the low water wharf and launch ramp at Oromocto. This site could be developed for about $20 000. Another option involves creation of a security compound in the Town works yard upstream of the marina and adjacent to the Oromocto River.

17). Cocagne

This facility, for which access is restricted by the vertical clearance under the highway bridge over the approach channel, is used almost exclusively by power boats. The facility currently meets the needs of the resident boaters in the area. The only major items requiring attention at this facility are:

1). a limited feasibility investigation to determine the extent and nature of siltation which appears to be occurring at the entrance to the breakwater; and

2). improvements to the float arrangement in the area normally used as the pickup/dropoff location for the tour boat which operates out of this facility.

The nature of the siltation problem which is apparently developing at the harbour entrance is undetermined at this time. However, since the facility has been in existence for approximately six years, it appears that the siltation process has been gradual and may have stabilized. If the proposed feasibility work indicates problems, it may be possible to provide the required dredging from the land side with a clam bucket operation.

The problem with the floats relates to the extra loads incurred by concentrations of tour participants. Replacement of the floats in this area with sections having greater flotation capabilities should rectify this problem.

The estimated cost of these items is $10 000.

18). Richibucto

The existing marina at Grande Aldouane is not a practical harbour of refuge for many coastal cruising sailboats because of depth restrictions at the outer end of the marina approach channel. Therefore, it is recommended that the existing public wharf at Richibucto be designated as a "harbour of refuge" for boats seeking the opportunity to obtain refuge during adverse weather conditions.

Examination of the existing public wharf and fishing wharf facility at Richibucto indicated there is adequate opportunity to utilize this facility as a harbour of refuge for recreational boats since the demand would only be sporatic. Such demand would involve a small number of vessels at any given time.

The relatively new marina facility (at Grande Aldouane) is adequately serving the requirements for the boaters in this area. The shore based component of this facility also serves as a general recreation area and is used for other non-boating functions. Although there is an apparent desire to provide an additional clubhouse building at this site, it appears that these requirements are associated more with land based functions than with the immediate and direct requirements of recreational boaters. Consequently, the clubhouse facility has not been included in this document which is oriented primarily to the recreational boating requirements.

There has been some discussion about problems from wave agitation in the berthing basin adjacent to the entrance. It was not possible during the course of this study to determine the exact extent to which wave agitation occurs. However, our preliminary examination indicates that the wind fetch (distance over water) at this site is not long enough to generate very large waves. If this apparent problem persists, it is recommended that the feasibility of placing a section of floating timber wave protection structure outside of the entrance such that it would reduce the direct wave exposure be examined (the estimated cost of this limited feasibility study is $10 000).

There are no major short term requirements at this facility.

19). Dalhousie

The environmental problems associated with the location of the existing facility make it unconducive to recreational boating functions. One problem relates to the exposure to dust problems generated from the ore concentrates piles at the adjacent public wharf. This is complicated, to an even greater extent, by the need for retention dykes to dispose of contaminated dredging spoils which are regularly taken from Dalhousie Harbour. The current development of dredged spoils basins immediately adjacent to the marina location are such that in the short term, it is highly probable that the dredge spoils sites currently available will soon be fully utilized. Additional space will soon be required for disposition of dredge spoils and the marina basin will probably soon be totally encroached upon by dredge retention basins.

The adverse conditions at this location have already resulted in a decrease in the numbers of boats which were kept at this facility over the past few seasons. Some boat owners are simply not putting their boats in the water or are utilizing facilities at other locations along both the New Brunswick and Quebec shores of the Chaleur Bay.

Substantial work has been undertaken on behalf of the Bon Ami Boat Club to identify relocation options for the marina. The relocation site proposed by the boat club and the Town is at Inch Arran Park. Figure 4.17 illustrates the location of the existing marina and the community's desired site for relocation of the marina facility.

The primary difficulty with their proposed new site for the marina is the degree of exposure to wave conditions. This facility would be directly exposed to waves generated from long distances along Chaleur Bay. Consequently, the wave climate would be relatively severe. Expensive, rubble mound breakwaters would be the only practical approach for wave protection purposes. The less expensive alternatives of floating wave protection, would not be appropriate for the wave climate which would exist at the Inch Arran Park location.

A preliminary concept for the relocation of the marina to the Inch Arran Park area has been prepared by representatives of the Town and the Bon Ami Boat Club. Two factors affect the total cost of relocation from the existing facility to the potential new location at Inch Arran Park. These are: a). the construction costs associated with the wave protection structures and the marina berthage system within the protected basin; and b). possible cost recovery which might be achieved if the existing marina breakwater in the West Bay could be sold to Public Works Canada for use as a retention dyke for creation of dredge spoils retaining basins.

The estimated cost of the marina and associated wave protection structures is 2.5 million dollars*. This is nearly twice the cost estimate in the relocation proposal submitted by the Town of Dalhousie.

Also, the estimated possible resale value of the existing marina breakwater as a dredge spoils containment facility is about $200 000. This estimate* is only one-third of the resale value estimated in the proposed marina relocation report submitted by the Town of Dalhousie.

The potential net cost of relocating the marina (assuming sale of the existing marina breakwater to Public Works Canada) based on the Eastern Designers and Company Ltd. estimates, is approximately 2.3 million dollars.

---

* Based on estimates prepared by Eastern Designers and Company Ltd.

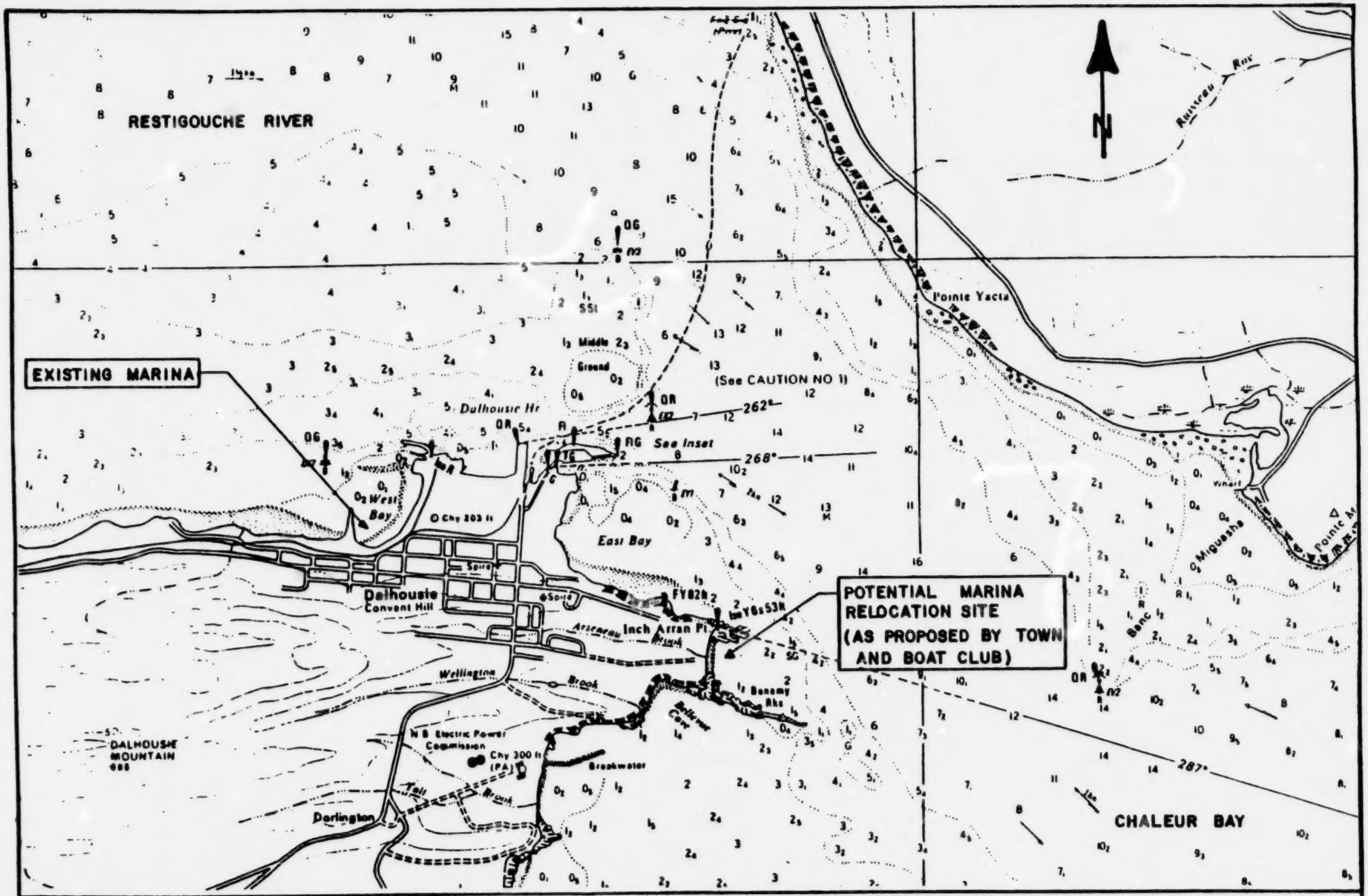

N
RESTIGOUCHE RIVER
EXISTING MARINA
POTENTIAL MARINA RELOCATION SITE (AS PROPOSED BY TOWN AND BOAT CLUB)
CHALEUR BAY
Dalhousie
Convent Hill
Dalhousie Hr
West Bay
East Bay
Middle Ground
(See CAUTION NO 1)
See Inset
262°
268°
287°
Inch Arran Pt
Pointe Yacta
Miguasha
Banc
Wellington
Brook
N B Electric Power Commission
Chy 300 ft
Breakwater
Darlington
DALHOUSIE MOUNTAIN
Ristigouche Riv

FIGURE 4.17: SITE OF POSSIBLE MARINA RELOCATION - DALHOUSIE

FIANDER - GOOD ASSOCIATES LTD.

Given the complicated nature of design for this location, it is strongly recommended that a comprehensive coastal engineering study be conducted prior to any further consideration of development at this location. Such a study should include:

1). Site surveys (bathometric and geotechnical investigations);

2). Wave and current measurements;

3). Near shore wave climate analysis;

4). Breakwater design;

5). A hydraulic model study (harbour agitation); and

6). Engineering drawings and specifications.

The estimated cost to conduct such a study is approximately $150 000. Although this may seem expensive, it is small compared to the potential risk and negative impacts of incorrect design of an expensive facility in such an exposed location. It may also be appropriate to consider other, less exposed locations for marina development.

Interest in marina facilities has also been expressed by Campbellton representatives. However, in light of the limited fleet in the entire Restigouche River area, the more central location of Dalhousie, and its proximity to deeper water (for deep draft sailboats), it is recommended that marina development efforts be initially concentrated in the Dalhousie area.

20). Dipper Harbour

This facility, which is primarily a commercial fishing harbour has been designated as a harbour of refuge. It also received additional points on the overall priority rating scheme due to its location in an area which has a high potential for transient activity (both resident and non-resident). As well, this facility is the base for one of the existing charter operations. The proposed improvements for recreational boating facilities at this harbour are as follows:

1). Provision of six moorings (cost = $2 000) to be marked and identified for use by recreational boats; and

2). Identification of this facility as a harbour of refuge in the same manner as all of the facilities in Group IV of Figure 3.5.

21). Shippagan

The partially constructed facility at Shippagan involves a layout capable of accommodating 118 berths. At present, only 31 of these spaces which are available for lifetime rental are committed.

This facility is located adjacent to the Marine Centre which is a major tourist attraction in downtown Shippagan. There has also been interest expressed in developing a marina at Petite Lameque on Lameque Island. However, this area is only about six miles away from the new facility at Shippagan. This area is accessible by means of the bridge/causeway connecting Lameque Island to the mainland at Shippagan. Research conducted during the initial phases of this study identified a potential fleet of power boats based out of Petite Lameque which totals approximately 60 vessels. However, over half of these are estimated to be less than 20 feet in length. Consequently, the primary fleet which is being addressed in this study is only about 25 vessels. This demand can easily be accommodated within the expansion possibilities at the Shippagan marina (there is a current surplus capacity of over 80 berths). Therefore, it is recommended that the Shippagan marina should adequately accommodate the demand for the entire area surrounding Shippagan, including Petite Lameque.

The existing development at Shippagan has included provision of breakwaters, dredging necessary to create a berthing basin and construction of the float systems.

Although the facility is located immediately adjacent to the Marine Centre, there is currently no clubhouse. It is proposed that a clubhouse containing the following facilities be constructed to meet the marina requirements:

1). general clubhouse/lounge building;

2). washrooms with showers;

3). ice dispensing equipment; and

4). telephones, power and water at dockside.

The estimated cost for completion of the above noted major items regarding development of this marina facility is $75 000.

22). Douglastown

The Douglastown facility which is currently under development has the capability of meeting the requirements of the resident boating fleet in the Miramichi Bay for the short and medium term. This facility provides a protected harbour capable of accommodating the resident fleet and a limited amount of transient activity.

Given the level of local and transient demand, there appears to be no justification for considering additional facilities in the inner Miramichi Bay area. The possible development of a marine museum at Chatham could enhance the opportunities for recreational boating by including provision for limited floats to provide access to this potential facility and the immediate downtown area of Chatham.

One area of potential concern regarding this facility relates to the possibility of sedimentation within the marina basin. However, preliminary review carried out by the members of our team from Eastern

Designers and Company Ltd. indicates that the amount of sediment being transported per year in this area of the river is small. Even though this facility is located in the river reach, due to tidal current exchanges, the concentration levels are too low to cause serious sedimentation problems inside the marina basin. The results of this analysis indicate that significant accumulative deposition does not occur in this area of the river. However, an estuary dredged material disposal site is located just upstream of the Douglastown marina. This might become a source of sediment that could have the potential for causing siltation near or inside the marina basin. This might occur if the dredged material did not all remain in the disposal site but were redistributed over the estuary. Under such circumstances, a small amount of material could find its way inside the marina. However, the probability of significant accumulation does not appear to be high.

The work program envisioned at the Douglastown marina is based on expanding the capacity from the current 27 berths to a total of 40 berths. The proposed work plan includes:

1). enlarging the berthing basin including appropriate piling and landfilling; and

2). installing power and water at dockside; and

3). completing paving, topsoil/landscaping and general lighting.

The estimated cost to complete this facility is about $300 000.

Two other areas between Shippagan and Douglastown were considered regarding the potential for harbours of refuge. These are Tracadie and Neguac. However, the major deterrent for both of these areas is the limited draft available at low tide. This is of particular concern regarding the deeper draft requirements associated with cruising class sailing vessels. Aside from the limited draft available in the approaches and harbour basin at both places, the demand by the primary recreational boating fleet is limited. In particular, the primary fleet which is of major concern for this study is small at both locations. As well, the potential for transient activity is limited.

A potential development at Neguac is in conjunction with the park development occurring on Hay Island. However, this site would require extensive dredging of the sand bar at the outer end of the island in order to accommodate the berthing basin. There may also be potential on-going dredging problems associated with marina development at this site. Given the limited primary class fleet and the potential for siltation problems, no further consideration was given to the Hay Island development.

23). Saint John Power Boat Club

This club is the primary base for the larger power boats in the lower portion of the Saint John River. This facility is used mainly as a berthing and winter storage basin with no significant current activity in the old clubhouse building.

Of the existing facilities, this one is closest to the Reversing Falls. However, because of the limited services available, it is less desirable as a layover location for transient vessels awaiting slack tide at the Reversing Falls rapids than the RKYC or the Saint John Marina.

The main short term capital requirements at this facility relate to dredging the berthing basin. There were some suggestions that the approach channel is also silting up but this has generally not yet caused significant problems.

Based on an assumed average depth of water and assuming the material is all silt, the approximate cost of dredging the berthing basin is $125 000.

4.2.4 Summary of Primary Facility Improvement Programs

The overall priorities for the primary facilities identified in Section 4.2 of this chapter were addressed in Chapter 3.0. The results of that analysis are illustrated by the priority ratings shown in Figure 3.5 which, for reader convenience, has also been illustrated in this section as Figure 4.18.

For summary purposes, the detailed information in Table 4.2 for the primary facilities has been consolidated to produce Table 4.3. It is evident from examining the primary improvement programs detailed in Table 4.2 and summarized in Table 4.3, that the major capital requirements are associated with the facilities in priority Groups I, II and III.

The one facility in Group V is not in need for further expansion in the short term. The requirements for Group IV are minimal in that only designation of each of these facilities as a "harbour of refuge" is necessary. The cost to implement this designation process for the facilities in Group IV is nominal. This is due to the fact that a key requirement is making the appropriate designations in the "Sailing Directions" and cruising guides as they become available. The only other cost associated with Group IV is that of installing appropriate signing at each of these "harbour of refuge" facilities. In light of this, it is recommended that the Group IV facilities be designated as "harbours of refuge" as soon as possible.

As illustrated in Table 4.3 and Figure 4.18, the bulk of the capital requirements for the proposed programs relates to the facilities in priority Groups I to III inclusive. For these facilities, the priorities illustrated in Figure 4.18 identify a logical ranking for purposes of an initial implementation strategy. Depending on the extent of funds available, Figure 4.18 could be used to identify an implementation program. The priority ratings in this figure and the program development components summarized in Table 4.2 jointly represent an implementation program which could be achieved over a 5 year period. Further evaluation of improvement implementation options is included in Chapter 6.0.

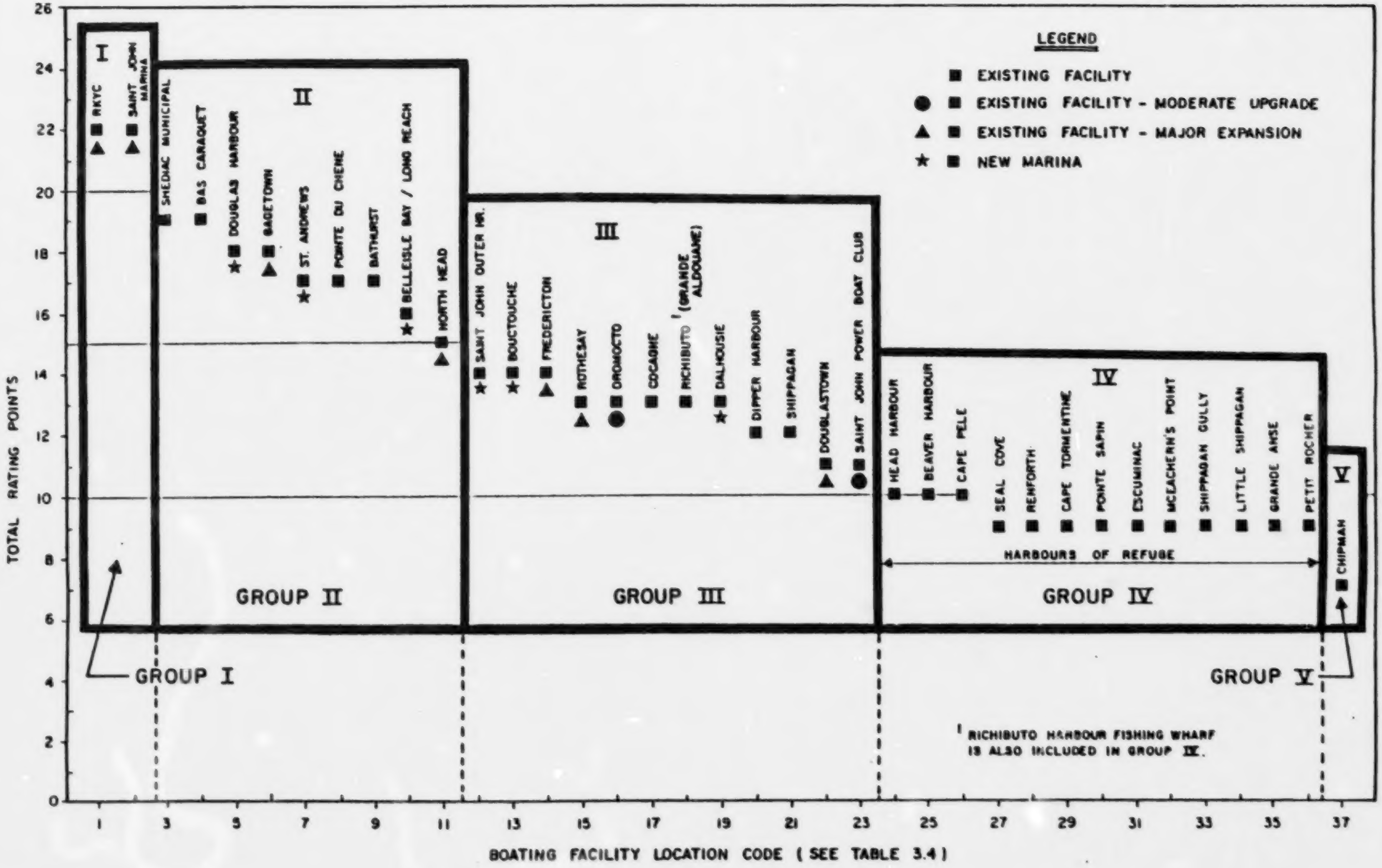


FIGURE 4.18: BOATING FACILITY PRIORITY RATINGS

Table 4.3

SUMMARY OF PRIMARY RECREATIONAL BOATING DEVELOPMENT PROGRAMS

	Program Item	Cost (1986 $ x 000)	Comments
a).	Group I Priority Facilities.	1 250.0 to 1 350.0	These should be implmented on the basis of the priorities shown in Figure 4.18.
b).	Group II Priority Facilities.	3 804.0 to 4 104.0	As Above.
c).	Group III Priority Facilities.	4 117.0 to 5 142.0	As Above.
d).	Group IV Priority Facilities.	10.0	These facilities should be immediately designated as harbours of refuge.
e).	Group V Priority Facilities.	0.0	No expansion is proposed at this location.
	SUBTOTAL	9 181.0 to 10 606.0	

4.3 Secondary Items in the Provincial Recreational Boating Program

4.3.1 Introduction

This subsection lists four types of facility development improvements which would provide an important additional service to the primary fleet under consideration in this study.

4.3.2 Maintenance of Riverboat Wharf System

The existing network of public wharfs in the Saint John River system provide an important service to recreational boaters. Many of the facilities are still in good condition and could be kept functional with nominal maintenance.

Because of the generally good quality of these existing facilities and their current use and desirability as stopover and overnight layover locations, it is recommended that several of these facilities be designated as part of a network of secondary structures providing an important service to the recreational boating fleet.

Figure 4.19 illustrates the proposed network of public wharfs to be designated as providing specific recreational functions. Several of these facilities have received minor improvements during the past several years. None of them are expected to require major upgrading. A detailed survey of all these facilities should be conducted to provide a current inventory of the existing condition of these facilities and identify an appropriate program for minor repairs and improvements. This survey could be done during the current season and a limited preventative maintenance program prepared to ensure these facilities are maintained at an appropriate standard.

The types of improvements that are envisioned on a regualar basis at these facilities would include only minor repair items such as provision of new

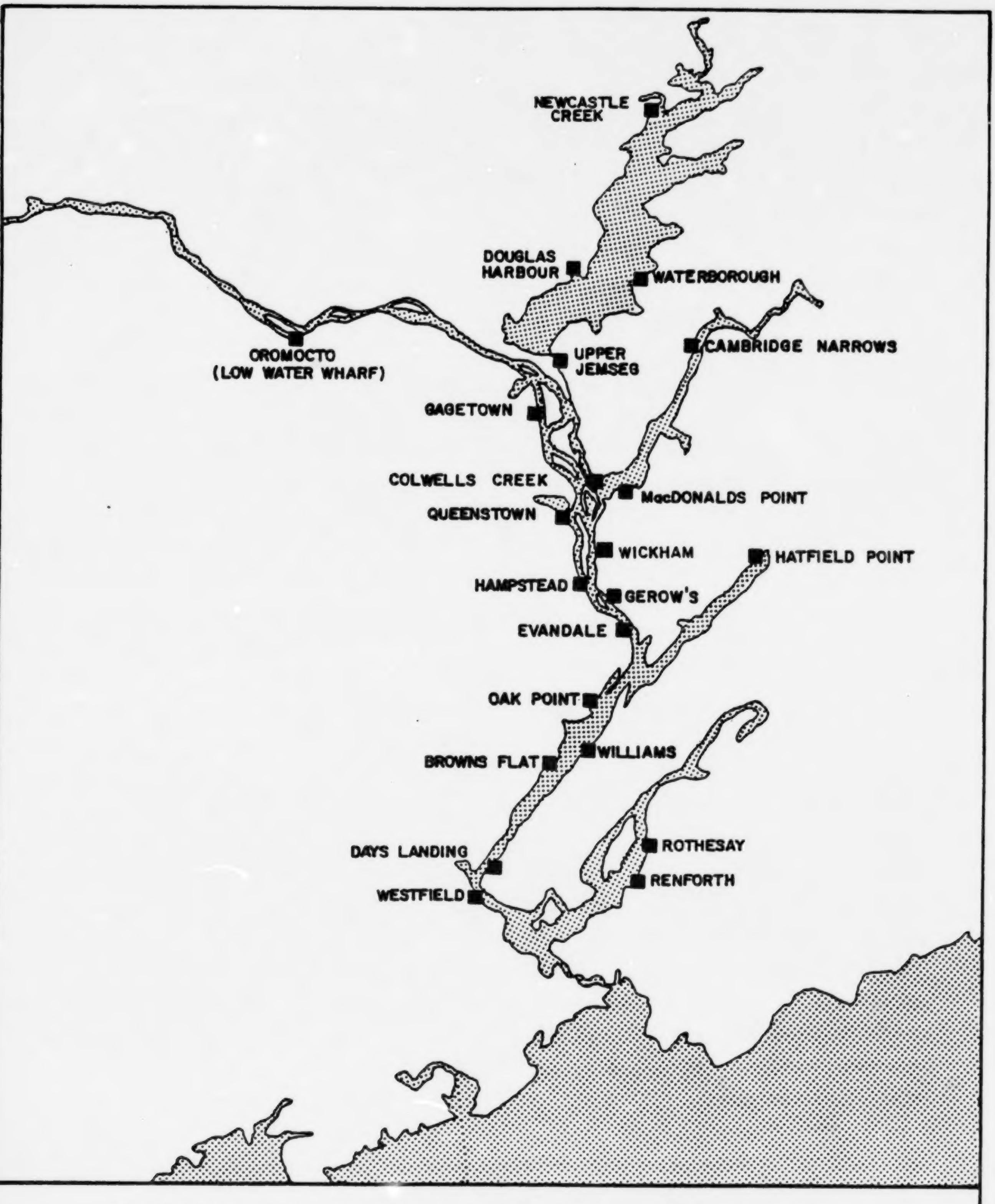

NEWCASTLE CREEK
DOUGLAS HARBOUR
WATERBOROUGH
OROMOCTO (LOW WATER WHARF)
UPPER JEMSEG
CAMBRIDGE NARROWS
GAGETOWN
COLWELLS CREEK
MacDONALDS POINT
QUEENSTOWN
WICKHAM
HATFIELD POINT
HAMPSTEAD
GEROW'S
EVANDALE
OAK POINT
BROWNS FLAT
WILLIAMS
ROTHESAY
DAYS LANDING
RENFORTH
WESTFIELD

FIGURE 4.19: PRIMARY PUBLIC WHARVES IN THE SAINT JOHN RIVER

FIANDER - GOOD ASSOCIATES LTD.

fenders along the face of the structure, provision of ladders and mooring cleats and other minor repair work. Typically, the average expenditure necessary to provide periodic upgrading of these facilities would be about $2 000 per facility. However, over half of these facilities have been upgraded in recent years. It is anticipated that only a limited number of the facilities in the total network identified in Figure 4.19 would require maintenance in any given year.

Initially, it is expected that an allocation of $15 000 would be adequate to complete the upgrading required to put these wharves in acceptable condition. A probable maintenance budget of $10 000 per year should be appropriate to maintain these facilities on an on-going basis. This cost is nominal in light of the extensive network which is currently in place and the service that these facilities provide to a broad spectrum of recreational boaters throughout the entire Saint John River system.

The only additional service required at the existing public wharf network throughout the river system is that of providing garbage disposal cans and a garbage collection service. It is recommended that this be accommodated by either the Department of Transportation or Tourism New Brunswick, depending on the location of individual sites relative to the activities of these departments in the respective areas.

4.3.3 Network of Primary Haulout Ramps

One of the areas for potential development of recreational boating activity involving craft in excess of 20 feet in length is that associated with the vacationing boater. This component of recreational boating is one which is showing significant expansion in the New England states and other provinces in Central and Eastern Canada. This activity generally involves small groups with a small vessel capable of limited coastal or inland water cruising. These craft, with limited sleeping accommodations, are trailered in a manner similar to that for camper trailers for onland activities. The primary facility requirement to accommodate and expand this potential tourism market segment is a network of good launch ramps. These ramps would have to be of a design capable of accommodating vessels in the 20 to 24 foot range. More importantly, they must be steep enough to accommodate the deeper drafts associated with sailboats in this size range.

Many of the current launch ramps available throughout the Study Area were designed and implemented with the primary intention of accommodating smaller boats with shallower drafts or those with centre boards which can be retracted during the launching process. Consequently, these facilities are often shallow sloped and are difficult to accommodate the type of craft being addressed in this section.

It is recommended that a limited network of launch ramps and/or lift facilities capable of handling this component of the fleet requirements be identified.

The centres which should be included in this study are:

1). Dalhousie;
2). Bathurst;
3). Bas Caraquet or Shippagan;
4). Douglastown;
5). Richibucto;
6). Shediac;
7). Fredericton/Oromocto;
8). Grand Lake;
9). Washademoak Lake;
10). Saint John; and
11). St. Andrews.

As noted, in all of these locations, launch ramp facilities currently exist. However, in some of these locations the facilities are not desirable for the type of vessel being addressed in this section.

Therefore, it is recommended that a study be undertaken to identify the detailed characteristics and capabilities of existing facilities at each of these locations. This review should identify the existing facilities necessary to serve the small trailerable cruising craft. This project should include identification of an improvement program necessary to accommodate these craft at each of the locations identified above. As well, a preliminary examination of the potential level of demand for this segment of tourism activity should be included in the work plan.

The estimated cost to complete this survey and identify an improvement program to ensure adequate launch capabilities for this class of vessel is $20 000.

4.3.4 Installing Moorings In Key Anchorages

As was indicated in Chapter 3.0, the Saint John River system is the key area for resident and non-resident cruising activities. This system is currently cruised extensively by resident boaters. As well, it has the greatest potential for expanding non-resident transient cruising activities. For these reasons, a number of principal sites (harbours/coves) should be identified as mooring areas because of their desirable locational features and characteristics.

It is recommended that approximately six moorings be installed in each of these locations. The floats for the moorings should be uniquely coloured and reserved for use on a short term basis by both resident and non-resident transient vessels. The specific locations (Figure 4.20) designated for this purpose are:

1). Drury Cove and Meehans Cove on the Kennebecasis River;
2). Whelpley Cove on Long Reach;
3). Kingston Creek and Jenkins Cove on the Belleisle Bay;
4). Big Cove on Washademoak Lake;
5). Colwells Creek (near the entrance to Washademoak Lake); and
6). Flowers Cove and Whites Cove on Grand Lake.

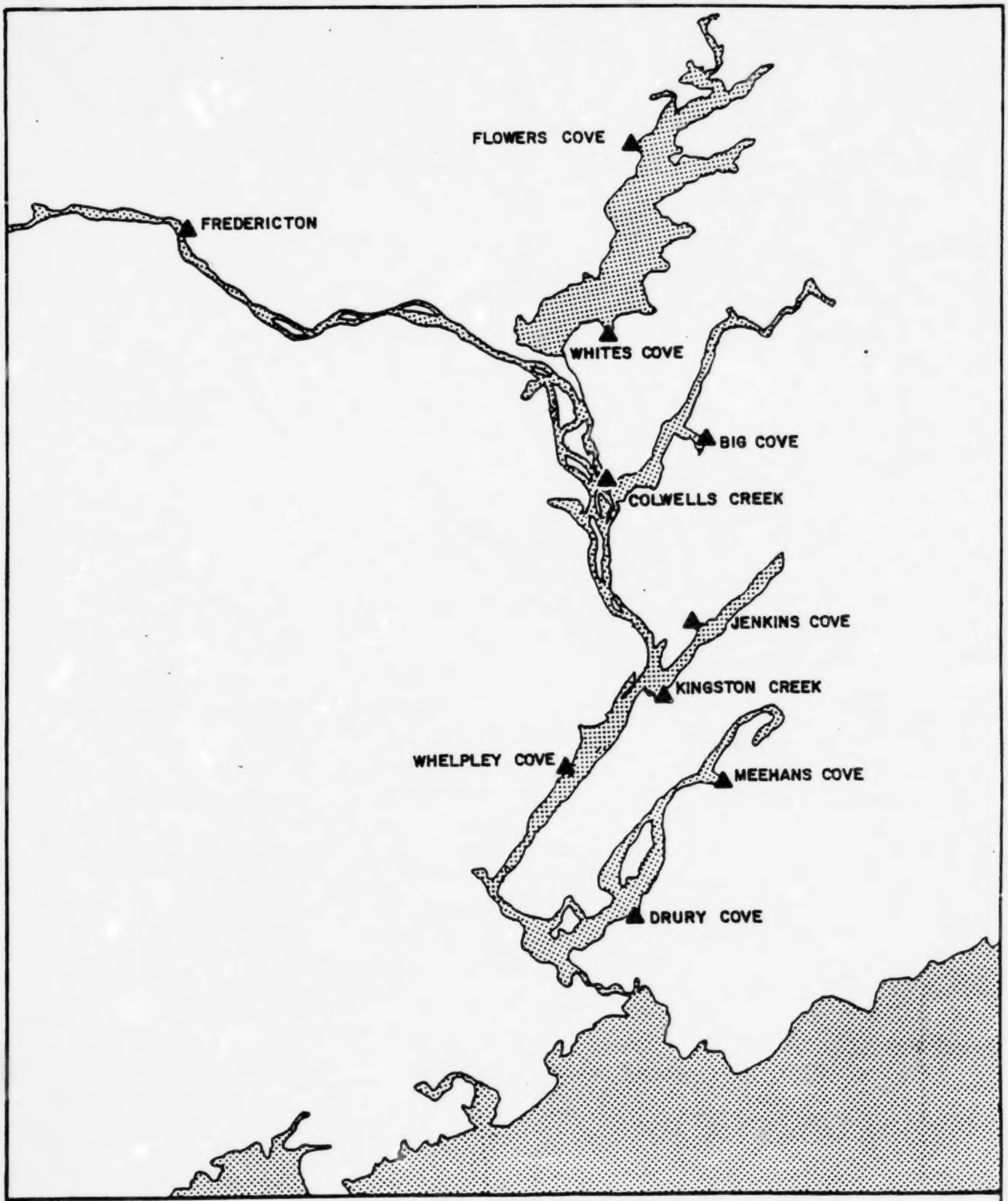

FLOWERS COVE
FREDERICTON
WHITES COVE
BIG COVE
COLWELLS CREEK
JENKINS COVE
KINGSTON CREEK
WHELPLEY COVE
MEEHANS COVE
DRURY COVE

FIGURE 4.20: KEY MOORAGE LOCATIONS IN THE SAINT JOHN RIVER

FIANDER - GOOD ASSOCIATES LTD.

The intial cost of installing transient moorings at these locations is $15 000.

4.3.5 Land Banking of High Potential Marine Recreation Areas

To protect the traditional activities which have been available to recreational boaters throughout the Study Area, it is recommended that consideration be given to land banking a few prime areas which have natural recreational capability. For example, throughout the Saint John River system there are islands/beaches which have traditionally been utilized by recreational boaters. As time passes, there is a growing tendency for increased development of cottages and other facilities along this waterway. There is also a growing tendency for land owners to restrict access to the water front areas and beaches along this waterway.

To preserve the opportunity for public use of some of the more attractive locations, it is recommended that government consider land banking a few sites for potential development of marine related recreational functions. These areas do not necessarily have to be in locations with access by water only. However, in some cases, this may be the only means of access. An example of such an opportunity is that associated with the very popular Grimross Island in the Saint John River near Gagetown and close to the entrance to Grand Lake.

4.3.6 Summary of Secondary Items in the Recreational Boating Development Program

Table 4.4 provides a summary of the four key secondary items proposed in this section. The first three items represent limited investment requirements. Due to the large potential positive impact each of these has relative to their limited costs, it is recommended that the first three items all be carried out early in the implementation stage. These items should receive the same emphasis as the highest priority items in the primary facilities programs addressed in Section 4.2.

Table 4.4

SUMMARY OF SECONDARY ITEMS IN THE RECREATIONAL BOATING DEVELOPMENT PROGRAM

Item	Cost ($ x 000)	Comments
1. Upgrade and maintain network of riverboat wharves in the Saint John River.	15.0	These existing facilities are used extensively by recreational boaters. They are generally in good condition and can be maintained for a reasonable number of years at nominal cost.
2. Study requirements of a haulout ramp network appropriate for the smaller sized trailerable cruising boats.	20.0	This component of recreational boating is just developing. It represents a good opportunity for substantial injection of funds to the economy by non-resident tourists. The proposed study would identify the capital program required to develop the network of ramps or lifts noted on page 4.65.
3. Install moorings in a number of frequently used anchorages in the Saint John River.	15.0	These inexpensive facilities would enhance utilization of the excellent, secure anchorages listed on page 4.66.
4. Make provision for land banking of prime waterfront properties.	150.0	This is proposed to provide an opportunity for continued public use to a limited number of rare properties with unique water-related recreational assets and potential. This suggestion is made in light of increased tendencies for private land owners to restrict use of prime water front areas by recreational boaters. Many of these areas have traditionally been used by boaters but as ownership changes and development (cottages and other) occurs, access restrictions have increased.

Item # 4 in Table 4.4 relates to a potentially more controversial issue of land banking. However, in light of the increased pressures on unique and rare parcels of property with high potential regarding development of water related recreational facilities for public use, this item should also be given serious consideration. This item is proposed essentially as an insurance mechanism to enhance the future opportunity for continued public utilization of unique, natural recreational resources. This item should be integrated into the long range strategic planning process for water-related recreation/tourism facilities.

5.0 MARKETING STRATEGY

5.1 Introduction

The marketing component of the overall strategy has been addressed on the basis of identifying answers to the following key questions:

1). What do we have to market in terms of recreational boating?

2). Is there economic justification for a provincial recreational boating development strategy?

3). What are realistic objectives for a provincial boating strategy?

4). How can the objectives of the boating strategy be achieved?

Discussion of questions 1 to 3 of the above list was presented in Chapter 3.0, Section 3.2. This chapter describes the proposed response to Question #4.

5.2 How can the Objectives of the Boating Strategy be Achieved?

The overall marketing strategy includes development of the basic infrastructure necessary to accommodate the needs of the resident boaters, non-resident boaters and charter/tour activities. This is necessary in order to ensure that people to whom these facilities and services are offered will have an acceptable level of service. Without this, efforts to increase the level of activity may only frustrate potential users. This could have long term negative impacts. Therefore, the marketing/promotion activities must parallel implementation of improvements in the facilities and services at key locations.

The proposed marketing plan identifies specific market segments. Guidelines are presented for maximizing the penetration of these segments. This includes an approach to providing information relating to the natural features of the market area. As well, provisions are made to promote the facilities and services which are available to accommodate the needs of recreational boaters.

Table 5.1 provides an overview of the marketing strategy proposed for the primary recreational boating facilities/services in New Brunswick. This table is structured to identify the proposed marketing approach for each of the primary and secondary market segments for each of the three major boating activities. The table also indicates the relative jurisdictional responsibility of the private and public sectors regarding implementation. It is assumed that the initiative for development would come from the facility operators/proponents (ie. the private sector or municipal governments). The term co-operative has been used to describe situations which would involve joint involvement of senior levels of government as well as the proponent group (ie. private sector or municipal government).

For resident boating activity, there is no distinction between the primary and secondary market segments. However, for the non-resident transient activity and the charter/tour boat operations, different marketing approaches are proposed for each of the primary and secondary market segments. The proposed approach for these two market segments (which relate to the geographic area from which the market would be extracted), is to tailor the promotional efforts so as to provide the most cost-effective results. More explicitly, marketing efforts should concentrate on the features which have the greatest potential for generating results. Also, the primary market areas for the non-resident transient activities and the charter/tour boat operations represent different geographic regions (Figures 5.1 and 5.2 illustrate the Study Area and potential market areas in adjoining regions).

The following paragraphs describe key features of the marketing strategy summarized in Table 5.1.

Table 5.1

MARKETING STRATEGY FOR RECREATIONAL BOATING FACILITIES/SERVICES IN NEW BRUNSWICK

Market Segment

Boating Activity	Primary: Area	Primary: Marketing Approach	Primary: Jurisdictional Responsibility: Private Sector	Primary: Jurisdictional Responsibility: Co-operative	Secondary: Area	Secondary: Marketing Approach	Secondary: Jurisdictional Responsibility: Private Sector	Secondary: Jurisdictional Responsibility: Co-operative
1. Resident Boating Primary Fleet (Home port and transient activities by primary fleet	All of study Area (Figure 5.1)	a). Produce a Cruising Guide.		x	All of Study Area (Figure 5.1)	Same as for Primary Market Segment		x
		b). Improved facilities/services as per details in Chapter 4.2.		x				
		c). Word of mouth.						
		d). Local ads in papers and on radio/TV.	x					
		e). Increased efforts of Lower Saint John River Promotion Association.		x				
		f). Possible Formation of East Coast Promotion Association and Expansion of Lower Saint John River Association to include Bay of Fundy.		x				
		g). Participation in winter/spring boat shows in Moncton, Saint John and Fredericton.	x					
2. Non-Resident Transients	New England states to and including Rhode Island plus Nova Scotia, Prince Edward Island and the Gaspe Coast of Quebec (Figure 5.2)	a). Produce a Cruising Guide.		x	Mid American Coast (Connecticut to New Jersey) and Upper St. Lawrence River (Figure 5.2).	Incorporate the boating topic into general Tourism N.B. promotion including ads in general purpose magazines such as McLeans, Time, Canadian Geographic, Newsweek-New England edition, and National Geographic Traveller (have backup information available on request).		x
		b). Improved facilities and services as per details in Chapter 4.2.		x				
		c). Develop specific promotion package for this market segment. Concentrate on sailboats rather than power boats (Table 5.2).		x				
		d). Initiate a reception/escort service in outer Saint John Harbour to assist transient vessels with passage through the Reversing Falls rapids.		x				
		e). Run general ads in the primary national and American boating magazine and periodicals (including Canadian Yachting - Power and Sail, Sailing Canada, Gam on Yachting, Cruising World, Sail and Yachting).		x		Items d, e, f and g for the primary market also apply to the secondary market.	x	x
		f). Have articles written for including in the same group of magazines as listed in Item e) above.		x				
		g). Assist specific sailing organizations in arranging cruises to New Brunswick (eg. Cruising Club of America and specific yacht clubs).	x	x				
		h). Participation in annual winter spring boat shows in Halifax, and possibly at Toronto, Boothbay Harbour and Boston (use the slide and video presentations described in Table 5.2).		x				
		i). Encourage greater convenience in availability of charts/sailing directions and general sailing material.	x					
3. Charter/Tour Boat Operations	New Brunswick, other Maritime Provinces, Ontario and Quebec New England to Massachusetts (Figures 5.1 and 5.2).	a). Produce a Cruising Guide		x	Newfoundland, other non-Maritime provinces and United States other than the New England states noted in the primary market areas.	Incorporate into general Tourism N.B. magazine advertising and have backup information available on request.		
		b). General ads in boating magazines (Canadian Yachting, Sailing Canada, Gam on Yachting and Cruising World).		x				
		c). Participation in boat shows at Halifax, Moncton, Saint John and Fredericton.		x				
		d). Participation in local promotional efforts.	x					

5.2.1 Cruising Guide

The one item which has the greatest potential to assist all three major components of boating activity is that relating to preparation of a good cruising guide for New Brunswick waters. This item was identified by a number of sources as being of primary importance. This input was received from the individual boat owner surveys, discussions with marina operators and club executives, discussions with representatives of the Cruising Club of America and the market research survey of potential cruisers from the New England coast.

Preparation of a cruising guide should receive top priority in the list of items included in the marketing strategy. This priority results partly because of its potential benefit to all three components of boating activity. Also, this high priority is justified by the widespread recognition of the benefits of such a guide as indicated by the above list of independent sources which all stressed the importance and value of a good cruising guide.

5.2.2 Resident Boating - Primary and Secondary Market Segments

As noted in Table 5.1, there is no distinction between the primary and secondary market areas for the resident boating activities. It is anticipated that the resident boating activity will expand directly as a result of the proposed improvements in facilities and services. In the past, the limited state of these items has had a constraining influence on boating activity.

Within the Study Area, assuming the product development programs noted in Chapter 4.0 are implemented, it is expected that a major source of marketing and promotion for recreational boating will be word of mouth. In addition, ads should be placed in local papers (weeklys and dailys) and on local television and radio to accommodate specific activities and functions associated with the respective facilities throughout the Study Area.

Other items which can enhance the overall development of recreational boating within the Study Area are increased efforts of established groups such as the Lower Saint John River Promotion Association. Possible formation of similar associations for the east coast should be considered. Expansion of the Lower Saint John River Promotion Association to include the Bay of Fundy should be considered as an option to formation of a separate group for the Bay area.

General promotion efforts should include participation in winter/spring boat shows in Moncton, Saint John and Fredericton. This function should include dissemination of literature and slide presentations.

5.2.3 Non-Resident Transient Activity - Primary Market Segment

The primary market segment for non-resident transient activity includes the New England coast to and including Rhode Island plus Nova Scotia, Prince Edward Island and the Gaspe coast of Quebec (ie. Matane/Rimouski). As is evident from the discussions in Section 3.2.1, the opportunities are much greater in the New England region of this market area. Therefore, the promotion efforts and expenditures should concentrate on the New England area.

The first unique marketing item for this segment of boating activity includes development of a promotion program (Item c, Table 5.1). This program should concentrate on sailboats rather than power boats because of the established trends which indicate higher participation rates for sailboats for the longer cruises which are typically required to reach the destination areas in New Brunswick. Supplementary details on this aspect of the marketing program are summarized in Table 5.2.

For the non-resident transient activity, the specific target market should initially be the yacht club commodores/ marina operators in the primary market area identified in Table 5.1. The basic plan identified in Table penetration/screening phase. At the same time, it provides the opportunity for followup with detailed information directed at the group(s) which show potential.

The initial approach involves contacting the executive of yacht clubs and marinas during the winter period to arrange individual or group trips to New Brunswick. This is a logical timing because it is normally during the off-season, winter period when cruises and trips are arranged for the subsequent year. Furthermore, it is common practice for individual clubs, groups of clubs or cruising organizations to do the planning for a large number of individuals. Therefore, the initial contact should be with these key organizations.

The basic approach should be that of sending a letter and properly developed brochure outlining the cruising opportunities and type of facilities available. This package should also highlight some of the major natural attractions of the destination areas. This initial contact can be supplemented with followup telephone calls to selected groups which are considered to have the greatest potential.

In conjuction with this initial contact and potential followup, a slide show and/or video tape presentation should be available for distribution on request to those who wish to have more detailed information. This presentation could be supplemented by personal presentation if the group is sincerely interested and represents a large enough group of potential cruisers (such presentations should be scheduled so that several groups are accommodated in the same trip). This could also include familiarization tours involving bringing groups to New Brunswick to observe the destination area facilities and services.

It is also recommended that mailouts to selected samples of individual boat owners in the primary market area be undertaken. These mailouts should include the same brief flyer which is sent to commodores, club executives and marina operators. This will assist in the general exposure of the New Brunswick destination areas and will help stimulate individual response.

Table 5.2

RECOMMENDED MARKETING APPROACH FOR THE PRIMARY MARKET SEGMENT OF NON-RESIDENT TRANSIENT BOATING ACTIVITY

Item	Comments
1. Target Market	Yacht Club Commordores/Marina Operators in Primary Market Area*.
2. General Marketing Plan	Send letters and brochures to all key clubs/operations. Make followup telephone calls to a selected sample of major clubs/operations. Have slide show/video tape presentation available for distribution to those groups/organizations with keen interest. If demand is sufficient, arrange scheduled tour for showing of slides/video and personal presentation/discussions. Show slides/video at selected boat shows (Table 5.1).
3. Support System	Have all basic initial contacts routed through a common 800 number (Tourism, Recreation and Heritage) for supplementary information. Have a cooperative system of information dissemination so that other clubs/marinas will be aware of major group cruises planned to the Study Area. Arrange special events including strategically scheduled annual "Parade of Sail" and a race on Grand Lake (scheduled to be compatible with the Marblehead to Halifax and Bicentennial Cup races). Have information available on preplanned schedule of summer season events of interest to cruisers (eg. farmers markets, strawberry festivals, bean suppers, corn boils, etc.)

---

* The primary market area for non-resident transient activity includes Nova Scotia, Prince Edward Island, and the Gaspe Coast of Quebec and the New England states to and including Rhode Island.

As is also noted in Table 5.2, the promotion plan requires an appropriate support system. The key to this is a central information number. It is recommended that this be done through the general "800" number available through the Department of Tourism, Recreation and Heritage (or some other general promotion group). This should allow coordination of feedback to the individual groups, organizations or businesses which are being promoted.

To supplement the general promotion of existing and developing services, the local clubs/associations should initiate a number of additional special events to enhance the attraction of specific regions/features in the Study Area. For example, a feature of interest to the cruising community along the New England seaboard would be implementation of an annual sailboat race in Grand Lake. This should be scheduled to coincide with other events in which the coastal cruisers may be participating. For example, the timing of this race could be subsequent to the existing Marblehead and Bicentennial Cup races (and the potential new race from Marblehead to Grand Manan and Saint John). This would allow the opportunity for both the seasoned racers and those who may simply wish to partake in the coastal cruise but have the excitement of a race in the destination area.

General development of special programs/events such as an annual Grand Lake "Parade of Sail" and race are important elements of long term promotion. Other examples include integration of such functions as surf and turf beach parties, baked bean suppers, corn boils and clam boils.

Item (d) in Table 5.1 relates to initiating a reception/escort service in the outer Saint John Harbour for transient vessels. This is included because the Saint John River system has clearly been identified as the primary destination area for non-resident traffic visiting New Brunswick. This reception/escort service could be done in conjunction with the proposed Saint John Outer Harbour facility development (Item # 12 on Figure 3.5). Alternatively, this service could be provided in the interim, until such a facility is developed, at the Market Square floating dock.

The main services would include provision of a summer student to act as a reception/escort guide for the transient vessels entering Saint John Harbour awaiting slack tide to pass through the Reversing Falls rapids. This reception function could include dissemination of various promotional information regarding the Saint John area and the Saint John River in particular. As well, information on recreational boating opportunities throughout the province could be distributed. This service should include provision for VHF radiotelephone for communication with vessels traveling through the harbour.

Part of the information package should include a set of tables indicating the theoretical slack tide times at the Reversing Falls rapids. This can be easily generated from existing tide tables which are published annually. As well, the local escort service could provide updates on a day-to-day basis to reflect probable changes in the theoretical slack tide times depending on variations in the water level in the river. This service could also include advisory notices on request on the VHF radiotelephone communication system.

On-board or separate vessel escort services for visiting vessels should be provided to assist these vessels through the rapids at slack tide.

Item (e) in Table 5.1 relates to running general ads in the most popular national and American boating magazines and periodicals. These ads should promote boating throughout the Study Area. The primary target magazines for this material includes "Canadian Yachting - Power and Sail", "Sailing Canada", "Gam on Yachting", "Cruising World", "Sail" and "Yachting". The first three of these publications are Canadian with the last three being American. These are the most commonly read magazines by people who are frequent cruisers. Certainly, the Canadian magazines represent good sources for exposure to the Canadian market. However, from the general perspective of attracting the cruising market from the American seaboard, "Cruising World" is probably the most commonly read magazine. This magazine is also read extensively by Canadian members of the cruising fraternity.

Item (f) relates to more extensive efforts regarding publishing articles in the list of magazines noted above. This item would involve preparing articles derived from cruises or tours taken throughout portions of the Study Area. This should be approached from two levels. One being to encourage individual cruisers to prepare articles for inclusion in these magazines. The other being inviting contributing editors and journalists on tours of the Study Area with the intention that it is being done to collect input for an article to be published.

Item (g) involves assisting certain sailing organizations in arranging cruises to New Brunswick destinations. This could include assistance to specific individuals or groups of boats/yacht clubs from areas outside the province. It could also include major international cruising clubs such as the Cruising Club of America. The functions included in this item would be as indicated in Table 5.2.

Item (h) relates to participation in winter/spring boat shows. This activity may be useful regarding the primary market areas. It is not expected that this function would prove cost-effective for the secondary market areas. There are basically two components of the primary market area which are identified in this item. These are the Canadian and the New England components of the primary market area. Considering the Canadian component, the boat show of particular merit is the Halifax winter show. The Toronto show could be used to promote all aspects of boating including the charter and tour operations. The New England component of this market would include participation in the major winter boat show at Boston and the spring in-the-water boat show at Booth Bay Harbour held in May.

Item (i) is an important private sector responsibility. This group (ie. marina operators) should take the initiative to ensure convenient and adequate outlets for critical navigational/cruising material. In particular, emphasis must be placed on convenient and frequent access to outlets for hydrographic charts, Sailing Directions and other Coast Guard

Publications such as the "Radio Aids to Marine Navigation". Also, these outlets should have a good supply of general information about the cruising waters and adjoining shore-basded facilities of interest to the cruising community.

5.2.4 Non-Resident Transient Activity - Secondary Market Segment

The secondary market area includes the mid-American coast and the upper St. Lawrence River system (above Matane/Rimouski). The mid-American coast would include the states from Connecticut to New Jersey inclusive.

The potential for attracting transient traffic from the secondary market is very small because of the extensive time required to cruise the coastal distances necessary to reach any portion of the Study Area. Again, the primary potential relates to the attraction to the Saint John River area from the mid-American coast. However, the potential from even the very large cruising class fleet in the mid-American states, is limited because of the distance factor.

For this reason, it is suggested that the marketing efforts be limited to incorporating promotion of cruising opportunities into the general tourism New Brunswick promotion efforts. This would include identification of cruising opportunities in the general purpose ads which are run in magazines such as the New Yorker or Travel & Leisure. These ads would include identification of contacts and sources for supplementary information regarding the topic in question.

Although the promotion efforts in the secondary market area would not be done to the same extent as they are in the primary market area, the support information derived for the primary market area would also be available for use with the secondary market.

5.2.5 Charter/Tour Boat Operations

The primary market area for charters and tour boat operations includes New Brunswick, the other Maritime provinces, Ontario, Quebec and the New England states to Massachusetts.

The basic requirements for this component of recreational boating activity also include publishing a cruising guide and the improvements to the primary facilities and services. As well, specific attention is required for advertising in national boating magazines (including "Canadian Yachting", "Sailing Canada" and "Gam on Yachting"). Depending on the type of charter/tour in question, the use of local advertising is also appropriate. These ads include insertions in the local and regional newspapers. Participation in boat shows within the Atlantic Region is a viable means of promoting this element of recreational boating. The shows which are most relevant to this component of recreational boating activity are those at Halifax, Moncton, Saint John and Fredericton.

These activities should also include incorporating information in a number of local promotional efforts carried out by groups such as tourism oriented chambers and associations. Areas where these functions should be included are the general Tourism, Recreation and Heritage promotion literature including such items as the publications on "Summer Packages" and "Fishing and Hunting - New Brunswick".

The secondary market area for charter/tour boat operations includes Newfoundland, other non-Maritime provinces and states other than those identified as being part of the primary market area. In light of the relatively low potential return for marketing efforts in the secondary market area, it is recommended that the promotion efforts in this area include only the general Tourism, Recreation and Heritage advertising with the provision of backup information being packages available on request.

Table 5.2 illustrated the key factors in the recommended approach for the primary market area for non-resident transient activity. A variation on this same approach could also be utilized for promoting the charter and tour boat operations. The promotion requirements for charter operations are essentially the same as those for non-resident transient activity. The material could be modified to accommodate facilities and services of the charter operators as well as other services and features of importance such as the information relating to access by both land and air. Any pickup/dropoff arrangements which may be appropriate should be noted (ie. free pickup at airport, etc.).

5.3 Marketing Strategy Budget

Table 5.3 summarizes the preliminary budget estimate for the marketing strategy. This table indicates the estimated cost of preparing a cruising guide for the Study Area and both phases of the general promotion program. The cruising guide was emphasized by several sources associated with the various elements of recreational boating. The guide would assist development of all aspects of recreational boating. The greatest need for a cruising guide relates to the transient activity in the Bay of Fundy/Saint John River regions.

Table 5.3

PRELIMINARY BUDGET FOR MARKETING STRATEGY
FOR RECREATIONAL BOATING

Item	Cost ($000's)	Comments
1. Produce a Cruising Guide for the Study Area	150.0	1). This item is of prime importance. It will assist all three major components of recreational boating.
2. General Promotion (Phase I)	150.0	1). This includes provision for general promotion of both the primary and secondary market segments for all three components of boating activity (Table 5.1). 2). Phase I will cover the first 2 years of a 5 year program period.
3). General Promotion (Phase II)	75.0	1). The comments for # 1). of Phase I of the general promotion item also apply for Phase II. 2). Phase II will cover the last 3 years of a 5 year implementation period.

6.0 ECONOMIC AND FINANCIAL ANALYSIS OF PROPOSED DEVELOPMENT STRATEGY

6.1 Introduction

A number of economic and financial aspects were evaluated in this study. This chapter addresses the economic and financial characteristics of recreational boating which are relevant to implementation of the proposed strategy. A benefit-cost analysis was conducted so as to determine the long term economic viability of implementing various aspects of the development strategy. By discounting future benefit and cost streams using a social discount rate of 10 percent, the present value of benefits and costs over a 20 year analysis period was determined. The 20 year analysis period effectively allows for benefits to be realized for approximately 15 years following the implementation period.

6.2 Summary of Projected Capital Costs

The projected capital costs of the primary recreational boating facilities proposed in this strategy were summarized in Table 4.2. These items represented a total cost (1986$) of $9.2 to $10.6 million to implement the entire program of improvements to marina facilities. Table 6.1 provides a breakdown of the facility/service development costs for each of the three priority rating groups defined in Chapter 3.0.

For analysis purposes, it has been assumed that the capital projects in this strategy would be implemented with assistance from the present five year Canada/New Brunswick Subsidiary Agreement on Tourism Development or by funds from the Federal Department of Fisheries and Oceans. Therefore, it has been assumed that all cost elements of the development strategy are assumed to be incurred by March 31, 1989.

Table 6.2 combines the projected costs for the primary improvement programs for recreational boating facilities with the costs of the

Table 6.1

SUMMARY OF TOTAL CAPITAL COSTS
FOR PRIMARY BOATING FACILITIES
(1986$ X 000's)

Priority Rating		Estimated Capital Costs
Group I		1 250 to 1 350
Group II		3 804 to 4 104
Group III		4 117 to 5 142
Group IV		10
	TOTAL	9 181 to 10 606

Table 6.2

SUMMARY OF CAPITAL COSTS
(1986$ x 000's)

Year	Time Period	Development[3] Strategy	Marketing Strategy	Primary Facility Development	Present Value Of Discounted Costs @ 10%
-1	April 1985 to March 1986	150			165
0	April 1986 to March 1987		250[1]	3 298	3 548
1	April 1987 to March 1988		50[2]	3 298	3 044
2	April 1988 to March 1989		40[2]	3 298	2 759
3	April 1989 to March 1990		35[3]	-	26
	TOTAL	150	375	9 894	9 542

---

[1] Includes $150 000 to produce a comprehensive cruising guide and $100 000 for General Promotion (see Table 5.3).

[2] General Promotion (see Table 5.3).

[3] Governmental costs of study to develop recreational boating development strategy.

development strategy and the marketing strategy (Table 5.3). The minor costs of the secondary program items (Table 4.3) have been excluded from this analysis. It is assumed that the costs for facility development are incurred between April, 1986 and March, 1989. For simplicity, it has been assumed that the capital expenditures are evenly spread over this three year period. Such an implementation schedule would require a total average funding commitment (Private Sector and Public Sector) of $3.1 to $3.5 million per year.

The present value of the entire development costs for the recreational boating improvement programs is $9.5 million (Table 6.2).

6.3 Annual Costs and Revenues

If the development strategy delineated in this report is implemented, individual marina operators should certainly experience enhanced revenues. Increased revenues should result from more intensive use of the expanded facilities available to existing recreational boaters, as well as more extensive (or broadly based) use of the facilities due to increased numbers of visiting out-of-province transient boaters. Increased use of boating facilities is also anticipated as a result of new entrants to the sport.

In large measure, however, the benefits accruing from increased revenues from berthing, mooring, grocery purchases, etc. by individual marina operators is accounted for by the aggregate incremental benefits attributed to the implementation of the development concept. This is clarified in Section 6.4.

In general, the incremental annual operating costs incurred by marina operators, as a result of implementation of the development strategy will not be substantial, and are considered insignificant as compared to the capital costs involved.

6.4 Summary of Benefits

Earlier study tasks placed considerable emphasis on evaluating the economic impacts associated with existing recreational boating activities. These benefits took the form of annual expenditures by the marina based resident fleet for craft related expenditures (mooring and berthing fees, storage fees, maintenance, etc.); trip related expenditures (fuel, food, beverages, etc.); and vessel purchases. Although these expenditures represent a large sum of money, a detailed analysis of these expenditures revealed that direct benefits to the New Brunswick economy of $4.6 million per year would result.

It was found that non-resident boaters visiting the province collectively contributed annual expenditures in New Brunswick of $200 000 to $250 000. The patrons of existing tour and charter boat operations make annual expenditures in the province of about $420 000.

The implementation of the development concept described in this study would result in substantial increases in the annual economic impacts realized as a result of recreational boating activities. A summary of the projected incremental benefits are as follows:

1). Growth in Resident Boater Expenditures

By elimination of the deficiencies in the province's existing marina network, it is estimated that incremental growth in resident boater expenditure impacts of 5 percent per year can be realized over a five year period. After five years, the incremental growth in expenditure impacts resulting from resident recreational boaters is projected to decline to a 2 percent per year rate of growth. The incremental growth in boater expenditures (exclusive of inflation) is anticipated to occur based on:

a). an influx of new entrants to the sport based on improved facilities being available and improved promotion of facilities and opportunities available;

b). increased utilization of the existing resident fleet of recreational boats as a result of improved facilities being available, more marinas to visit, safer passage between marinas (as a result of harbours of refuge), etc.

2). Growth in Non-Resident Transient Boater Expenditures

It is projected that the benefits to the province from non-resident transient boater expenditures can be increased by $400 000 (from $225 000 per year to $625 000 per year) over a five year period. This would result from the combined effect of a removal of existing deficiencies in the marina network and an appropriate promotion strategy. After this short term increase (a near tripling) over a five year period, the annual growth in non-resident boater expenditures (exclusive of inflation) is estimated to occur at a rate of 5 percent per year.

3). Growth in Charter and Tour Boating Businesses

Based on good growth potential, it is projected that the existing level of expenditures on boat charters and tour boat cruises within the province could double from the present level of $420 000 per year to $840 000 per year, over a five year time frame. This rapid growth rate (20 percent per year) is anticipated as a result of implementation of various aspects of the recreational boating development strategy. After the initial five year period, growth in charter and tour boat operations is projected to continue to grow at 5 percent per year for the duration of the study period.

The incremental values projected from each of the three groups of benefits is summarized in Table 6.3. The discounted present value of these incremental benefits over the 20 year timeframe is $9.6 million.

6.5 Comparison of Benefits and Costs

Comparison of the total discounted incremental benefits and costs of the development strategy over a 20 year timeframe reveals a discounted value

Table 6.3

SUMMARY OF INCREMENTAL BENEFITS FROM IMPLEMENTATION OF RECREATIONAL BOATING DEVELOPMENT STRATEGY
(1986$ × 000's)

Year	Time Period	Growth in Resident Boater Expenditures	Growth in Non-Resident Transient Boater Expenditures	Growth in Charter & Tour Boat Expenditures	Total	Discount Factor @ 10%	Present Value
-1	April 1985 - March 1986	-	-	-	-	-	-
0	April '86 - March '87	-	-	-	-	1.0000	-
1	April '87 - March '88	230	80	84	394	.9091	358
2	April '88 - March '89	242	160	168	570	.8264	471
3	April '89 - March '90	254	240	252	746	.7513	560
4	April '90 - March '91	266	320	336	922	.6830	630
5	April '91 - March '92	279	400	420	1 099	.6209	682
6	April '92 - March '93	285	420	441	1 146	.5645	647
7	April '93 - March '94	290	441	463	1 194	.5132	613
8	April '94 - March '95	296	463	486	1 245	.4665	581
9	April '95 - March '96	302	486	511	1 299	.4241	551
10	April '96 - March '97	308	511	536	1 355	.3855	522
11	April '97 - March '98	314	536	563	1 413	.3505	495
12	April '98 - March '99	320	563	591	1 474	.3186	470
13	April '99 - March '00	327	591	621	1 539	.2897	446
14	April 2000 - March 2001	333	621	652	1 606	.2633	423
15	April '01 - March '02	340	652	684	1 676	.2394	401
16	April '02 - March '03	347	684	718	1 749	.2176	381
17	April '03 - March '04	354	718	754	1 826	.1978	361
18	April '04 - March '05	361	754	792	1 907	.1799	341
19	April '05 - March '06	368	792	832	1 992	.1635	326
20	April '06 - March '07	375	832	873	2 080	.1486	309
			Present Value of Incremental Benefits Over 20 Year Period				9 568

of incremental benefits of $9.6 million and a discounted value of incremental costs of $9.5 million, using a 10 percent discount rate. This results in a benefit-cost ratio of 1.01 and a net present value for the development concept of about (+$26 000) over the 20 year timeframe.

This is just above the breakeven benefit-cost ratio of 1.0 which would indicate the entire development concept is economically viable from society's perspective. In fact, given the accuracy of the estimates of both benefits and costs, it is reasonable to interpret the results of the analysis as indicating that the benefits are essentially equal to the costs over the 20 year analysis period.

It can also be noted that exclusion of the costs of preparing the development strategy and the on-going costs of the marketing strategy alone, are enough to increase the overall benefit-cost ratio of the marina development program to 1.06. However, the marketing strategy is considered extremely critical to the overall success of the development strategy and may represent the highest single "bang for the buck" item from the public sector point of view as regards incremental benefits returned for incremental costs incurred.

In order to provide government officials with broader guidance on the overall economic implications of the development concept, the relative benefits and costs of the development concept were compared specifically on the basis of the facilities in the three major priority groupings (Table 6.1 and Figure 3.5). It must be emphasized that it is not possible to precisely split up the aggregate benefits according to the three major priority groups. However, by combining knowledge of the existing marina facilities and recreational boater travel and spending patterns, it was possible to generally infer what proportion of incremental benefits would be associated with each priority grouping.

A breakdown of the projected benefits and costs by priority group is presented in Table 6.4. For simplicity, the relatively minor costs of preparing the development strategy and the marketing strategy have been eliminated. Also, all development costs have been discounted for only one year so as to facilitate comparisons between the three groupings. In other words, if projects in any one of the three groups were implemented one year from now, Table 6.4 summarizes the anticipated benefit-cost implications.

The highest benefit-cost ratios are achieved by the projects in Priority Groups I and II, which achieve ratios of 1.41 and 1.23 respectively. The development program for the facilities included in Group III, however, exhibit a benefit-cost ratio of less than one (0.82).

Recalling the cost estimates in Table 4.2, it is evident that the large cost of potential facility development at Dalhousie has a major impact on the benefit-cost ratio for Group III facilities. At the same time, the limited fleet size and relatively restricted prospects for transient activity, constrain the benefits to be derived from the Dalhousie facility. Because of these impacts, a separate evaluation of the benefit-cost ratio for Group III was carried out based on excluding the Dalhousie facility. This resulted in a benefit-cost ratio for the remaining facilities in this group of 1.24. At the same time, the overall benefit-cost ratio for the entire program would increase from 1.06 to 1.32.

6.6 Sensitivity Analysis

6.6.1 Introduction

The future is always uncertain and events rarely turn out precisely as forecast. For this reason, sensitivity analysis on the variables involved in an economic analysis, incorporating assumptions about the future, are useful to show decision makers which "uncertain" factors would be most liable to affect the results of an economic study. In the case of the proposed boating facility development program, it is useful to test the sensitivity of analysis results to changes in the key assumptions

Table 6.4

COMPARISON OF BENEFITS AND COSTS OF THE PRIMARY FACILITY IMPROVEMENTS IN EACH OF THE PRIORITY RATING GROUPS[1]

(1986$ x 000's)

Priority Group (See Figure 4.20)	Present Value of Incremental Benefits	Present Value of[2] Incremental Costs	Benefit-Cost Ratio
Group I Marinas	1 664	1 182	1.41
Group II Marinas	4 437	3 595	1.23
Group III Marinas	3 467	4 209	0.82[3]
TOTAL FACILITY DEVELOPMENT	9 568	8 986	1.06

---

[1] The individual improvement programs for each facility included in each of the priority rating groups are summarized in Table 4.2.

[2] These costs have each been discounted for one year only, so as to facilitate comparisons among the three groupings.

[3] This benefit-cost ratio increases to 1.24 if the relatively expensive Dalhousie improvements are excluded from this group. This exclusion would also increase the overall benefit-cost ratio to 1.32 from 1.06.

regarding the incremental benefits and costs. This sensitivity analysis was done for the entire program (ie. all facilities in Priority Groups I, II and III).

6.6.2 Impact of Changes in Benefits

Slower or More Rapid Growth in Resident Boater Expenditures: The basic analysis assumed that implementation of the development program would stimulate increased spending by resident boaters by a compound growth rate of 5 percent per year for the first five years, and thenceforth at a rate of 2 percent per year. If this assumption turned out to be overly optimistic, and the resident boater expenditures grow at a compound growth rate of only 2 percent per year, it would have the impact of reducing the present value of total incremental benefits to $8.0 million (from $9.6 million) and the benefit-cost ratio to 0.84.

On the contrary, if the growth of resident recreational boater expenditures turned out to be higher than projected, this would positively influence the benefit-cost ratio. For example, if as a positive response to implementation of the recreational boating development strategy, these expenditures increase at a rate of 7 percent a year for five years (instead of the five percent projected) and thenceforth continue to grow at a rate of three percent per year (instead of the two percent projected), then the present value of the incremental benefits would be $10.9 million (compared to $9.6 million) and the benefit-cost ratio would increase to 1.14.

Slower Growth in Non-Resident Boater Expenditures: The base analysis assumed that these expenditures would increase from $225 000 per year to $625 000 over a five year period (a compound growth rate of nearly 23 percent*), and thenceforth continue to grow at a rate of 5 percent per year. If this assumption turned out to be too optimistic and instead, the expenditures by non-resident transients increases by only 10 percent per year for five years, and then slows to a 3 percent annual growth rate for the duration of the 20 year study period, it would have the impact of reducing the present value of total incremental benefits to $7.2 million and the benefit cost ratio to .75.

---

* Even with this rapid growth in non-resident transient activity, the capture rate for the primary New England market area would be less than 3 percent of the cruising class fleet resident in that region.

An impact of similar magnitude would be experienceed if the growth in charter and tour boat operations, anticipated in the base case, failed to materialize.

6.6.3 Impact of Changes in Costs

The base analysis assumes a comprehensive and aggressive series of development initiatives are undertaken with a total cost of $10.3 million ($9.5 million present value). If the costs of this program could be trimmed by 15 percent (without seriously affecting the level of incremental benefits), the magnitude of the present value of costs would be reduced to $8.1 million, and the benefit-cost ratio would increase to 1.18.

6.6.4 Results of the Sensitivity Analysis

The primary economic impact of present recreational boating activities results from expenditures by the resident fleet. However, given the projected increases in the population over the next 20 years, as well as the anticipated levels of average incomes, dramatic increases in the growth rate of resident recreational boaters using marina based craft is not anticipated. Therefore, in order for the proposed boating development strategy to be successful, a large share of the incremental benefits will have to result from increased visitations by non-resident transient boaters and substantial growth in charter and tour boat operations. Without the realization of the anticipated growth in each of these boating activities, the large capital costs required for full program implementation would not be covered by the resultant benefits.

6.6.5 Shorter Time Horizon

The base analysis assumes that the benefits accruing to society as a result of implementating the comprehensive recreational boating strategy are realized over a 20 year analysis period. To test the impact on analysis results of a shortened time horizon, it was assumed that the benefits presented in Table 6.3 are only realized over a 15 year period. The results of this sensitivity analysis are that the present value of the benefits would be reduced to $7.9 million and the benefit-cost ratio would decrease to 0.82.

The sensitivity of analysis results to the length of the time horizon for the benefits reveals that in order for the recreational boating development strategy to be successful, the benefits must continue to accrue well into the future. This indicates the importance of on-going marketing and promotion programs to the long term success of the strategy.

6.7 Financial Implications

6.7.1 Financial Performance of Existing Marinas

One of the tasks undertaken as part of the examination of existing marinas was a review of the financial characteristics of these operations. This review was based principally on data received during interviews with the commodores or other officials of each club and marina facility. As well, seven marinas provided a recent financial statement for their operations on the condition that specific details be kept confidential.

In attempting the preparation of overall summaries of the financial characteristics of existing recreational marinas, it was concluded that the operations cover such a varied spectrum of services offered, that aggregation of the revenue and cost components of all marinas into one breakdown of the average financial components would be misleading. Indeed, to some extent, every marina is unique in the type of services offered as well as their respective financial characteristics. However, four general categories of service level provided by the marinas are considered sufficient to enable meaningful discussion of financial characteristics. These classifications are as follows:

1). Multiple Commercial Activity Facilities (such as Saint John Marina);
2). Multiple Recreational Activity Sites (such as Bas Caraquet);
3). Full Service Marinas (such as RKYC); and
4). Limited Service Marinas (such as Oromocto).

Table 6.5 presents a summary of the financial characteristics for each of these four groups of marinas.

The full service and limited service marinas depend chiefly upon berthing/mooring/membership fees for the majority of their revenues, while restaurant/lounge/bar facilities account for a large portion of the revenues earned by the two categories of multiple activity marinas. It should be realized that revenues earned from berthing/mooring fees paid by transient craft generally account for a very small proportion of total marina revenues. For all 22 facilities considered, the maximum share of revenues earned from transient craft mooring/berthing was 6.7 percent (for one marina) and the next highest was 3 to 4 percent (for two marinas). All remaining marinas earned less than two percent of annual revenues from fees collected from transient craft for mooring/berthing rentals. In fact, even some of the commercial marinas do not charge transients for temporary berthing/mooring in the hope of encouraging transient boaters to patronize their other facilities (ie. restaurant/bar, etc). Some of the private clubs have reciprocal agreements whereby members of respective boating clubs do not charge each other for short term berthing/mooring.

Generally, the financially successful commercial marina operations form one component of a multiple recreational activity site. In these cases, the marina serves as a drawing card to attract persons (boaters and non-boaters) to patronize other land based commercial operations (restaurant/lounge/ sleeping accommodations/general store).

Table 6.5

SUMMARY OF FINANCIAL CHARACTERISTICS OF RECREATIONAL BOATING MARINAS

	Marina Category			
	Multiple Commercial Activity Site[1]	Multiple Recreational Activity Site	Full Service Site	Limited Service Site
Number of Marinas in Group	3	4	6	7
MAJOR SOURCES OF REVENUE	Percentage of Total Revenue			
Berth Rental/Mooring/ Membership Fees	24 - 60	6 - 22	60 - 80	80 - 100
Haulout/Storage/ Launch	30 - 40	limited	20 - 40[2]	0 - 15[3]
Fuel Sales (net)	3 - 40	limited	limited	0 - 20[4]
Restaurant/Lounge/ Bar	N/A	70 - 90	limited	N/A
MAJOR COMPONENTS OF ANNUAL COSTS				
Wages	largest component	40 - 50	45 - 55	5 - 25
Maintenance & Repairs	second highest	10 - 15	10 - 15	25 - 50
Utilities (electricity, water, sewer, telephone)	N/A	4 - 9	10	5 - 10
Property Taxes	N/A	1 - 3	2 - 6	0 - 8
Insurance	N/A	2 - 3	2 - 4	5 - 10
Administrative Expenses and Office Supplies	N/A	5 - 7	10	10 - 30[5]

[1] This group are private operations where the marina is only one component of a number of commercial activities. What data was provided could not be separated among marina and non marina activities.

[2] Haulout/Storage/Launch available at three marinas only; for others in the group, revenue from this component would be negligible.

[3] Only two marinas in this group offer boat storage services; for others in the group, revenue from this component would be negligible.

[4] Only one marina in this group offers fuel sales; revenue from this component would be negligible for others in the group.

[5] Includes debt servicing.

The major component of annual operating costs for all marinas (particularly the multiple activity sites) is wages, followed by maintenance and repair costs. For the limited service marinas where members perform many tasks themselves, wages usually represent a relatively lower proportion of costs, approximately equal to the level of expenditures for maintenance and repairs.

6.7.2 Implementation Roles

Many existing marinas have utilized some governmental assistance towards capital costs and periodic maintenance/upgrading of facilities. Given the short duration of the operating season (3 to 4 months, depending on the facility), it is unlikely that an operator would realize sufficient net revenues so as to enable him to recoup the investment (capital costs) required to develop a stand-alone recreational boating marina. It appears more likely that a marina receiving a large portion of its capital cost through government funding should be capable of generating sufficient revenues to cover annual operating costs.

Review of the capital costs for several (actual and proposed) marinas indicates ball park cost figures for construction of a well equipped marina with modest clubhouse and 75 to 100 berths would typically be in the $1.0 to 1.5 million dollar range. For the same facility equipped with a more elaborate clubhouse providing public restaurant/lounge services, capital costs in the range of $1.5 to 2.0 million dollars would be more probable. The annual amortization costs for the former type of marina would be in the range of $132 000 to $198 000 (assuming a 20 year amortization period at 12 percent annual interest). For the latter, more elaborate type of marina, annual amortization costs would be in the range of $198 000 to $264 000.

None of the existing marinas in the Province enjoy sufficient net revenues (annual revenues minus annual costs) from marina based activities so as to enable them to repay annual amortization costs of this magnitude.

Therefore, it must be recognized that a substantial part of the benefits from expanded recreational boating facilities accrue to individuals and groups other than marina operators (ie. tour and charter operators, grocery stores, marina supply stores, etc.). Successful implementation of the recreational boating development strategy will require initiatives by the private sector and municipal governments. Equally important to successful implementation of this strategy is the need for major financial assistance towards capital costs by senior levels of government.

As noted, the initiative for development of recreational boating facilities and services lies with the proponents of such facilities. Typically, the proponent will be the private sector or municipal governments (or a combination of both). The mandate for development of small craft harbour facilities lies with the Small Craft Harbours Branch of the Department of Fisheries and Oceans. However, the historical role of the Small Craft Harbours Branch in the Maritime provinces has been with regard to commercial fishing requirements. This department has had only a relatively limited involvement with recreational boating facilities. At the present time, another potential opportunity for funding participation with the private sector/municipal governments is available through the Canada/New Brunswick Subsidiary Agreement on Tourism Development. However, this agreement focuses on tourism development. Obviously, the facilities with the greatest potential for tourism activity have greater applicability to this current agreement.

On-going operations and maintenance of recreational boating facilities should be supported primarily by the proponent group(s)*. For most of the facilities in the proposed boating strategy, additional financial analysis is required as part of the more detailed engineering feasibility and design work to be conducted subsequent to this study.

---

* At a few locations, on-going maintenance dredging may represent an element of maintenance costs which is in excess of what the operators can sustain out of normal revenues from these seasonal facilities.

It is also important to stress the positive impact of boating facilities and activities on other shore-based tourism spin-offs. This is a qualitative factor for which no efforts have been made to quantify. However, there is no question that boating facilities provide an additional attraction for land-based tourism which reinforces the justification for expansion of recreational boating facilities and services. This land-based spin-off applies to both individual passenger related vehicles and bus tours. New Brunswick currently lacks a water/sea image which has been the focus of recent tourism promotional efforts. Increased development of boating facilities would enhance formation of this desired image for the province.